

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2447.—VOL. LII.

LONDON, SATURDAY, JULY 15, 1882.

WITH SUPPLEMENT. PRICE SIXPENCE. BY POST, £1 4s PER ANNUM.

M. JAMES H. CROFTS, STOCK AND SHARE BROKER
AND MINING SHARE DEALER,
No. 1, FINCH LANE, CORNHILL, LONDON, E.C.
ESTABLISHED 1842.

BUSINESS transacted in all descriptions of Mining Stocks and Shares (British and Foreign), Consols, Bonds (Foreign and Colonial), Railways, Insurance, Assurance, Telegraphs, Tramways, Shipping, Canal, Gas, Water, and Dock Shares, and all Miscellaneous Shares.

BUSINESS negotiated in Stocks and Shares not having a general market value.

Every Friday a general and reliable List issued (a copy of which will be forwarded on application), containing closing prices of the week.

MINES INSPECTED.
BANKERS: CITY BANK, LONDON.—SOUTH CORNWALL BANK, ST. AUUSTELL.

SPECIAL DEALINGS in the following, or part:—
Almaden, 11s. 3d.
Bedford United, 37s.
Bratsberg, 31s.
Carnarvon Cop., 10s.
Callao Bis, 8s. 6d.
Chile Gold, 12s. 6d.
Consolidated, 5s.
Devala Cen., 13s. 9d.
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Devon Con., 42½.
Devon Friend., 4s. 3d.
Don Pedro, 6s. 3d.
Drakewalls, 10s. 6d.
East Blue Hills, 10s. 6d.
East Caradon, 25s.
E. Chiverton, 25s.
East Lovell, 12s. 6d.
E. Roman Grav., 8s. 9d.
English Australian Gold, 10s. 6d.
Frontino, 42½.
Glenrock, 41s. 3d.
Glenroy, 5s.
Gold Coast, 22s. 6d.
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Gwydyr Amal., off. w.
Potosi, 11s.
Parys Copper, 8s. 9d.
Prince of Wales, 8s.
Panulicillo, 28½.
Pestana, 4s. 9d.
Ruby, 22½.
Rhodes Reef, 16s. 3d.
Richmond, 28½.
Roman Gravels, 29½.
Sierra Buttes, 30s.
S. Condurrow, 28½.
So. Darren, 15s.
S. E. Wynad, 23½.
So. Devon Uni., 17s. 6d.
Sortridge, 4s. 6d.
Simons Reef, 2s. 9d.
Tanker, Gt. Con., 5s. 3d.
Unl. Van Con., 7s. 6d.
West Devon, 7s. 6d.
West Phoenix, 12s. 6d.
West Caradon, 15s. 6d.
West Crebor, 13s. 9d.
West Polgreen, 20s.
Wheal Crebor, 23s.
Wheal Kitty, 210½.
Wheal Jewell, 2s. 6d.
Wheal Kitty, 21s. 6d.
Wheal Kitty, 21s. 6d.

* SPECIAL BUSINESS at CLOSE PRICES in all Market TIN, COPPER and LEAD SHARES.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

ELECTRIC LIGHT SHARES—SPECIAL BUSINESS.
Shares sold for cash, account, or for forward delivery (one, two, or three months) on deposit of 20 per cent.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS—FOREIGN BONDS—SPECIAL BUSINESS.
Fortnightly Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

AMERICAN AND CANADIAN STOCKS AND SHARES—SPECIAL BUSINESS.
Fortnightly Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

OPTIONS, SINGLE or DOUBLE, dealt in at close market prices.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

INDIAN GOLD MINES—SPECIAL BUSINESS in:—
Devala Moyer.
Devala Central.
Indian Consolidated.
Indian Glenrock.
Indian Phoenix.
Indian Kingston.
Indian Trevelyan.
Mysore.
Wynad Perseverance.
At CLOSE MARKET PRICES, free of commission.
* Reliable information given on any of the above. A daily price list issued with closing quotations. SPECIAL BUSINESS in La Plata, Rio Tinto, Antioquia and Bolivia, Potosi, Chile, Nouveau Monde, Ruby, Richmond.
* SHARES IN THE ABOVE INDIAN or OTHER GOLD and SILVER MINES SOLD FOR FORWARD DELIVERY ONE, TWO, or THREE MONTHS ON DEPOSIT OF TWENTY PER CENT.
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ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER,
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TRAMWAYS, TELEGRAPHS, and all the LEADING INVESTMENTS.
Accounts opened for the Fortnightly Settlement.

A List of Investments free on application.
MR. BUMPUS has SPECIAL BUSINESS in the undermentioned:—
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Bratsberg, 31s.
Carnarvon Cop., 10s.
Callao Bis, 8s. 6d.
Chile Gold, 12s. 6d.
Consolidated, 5s.
Devala Cen., 13s. 9d.
D'Eresby Mount, 13s. 9d.
Devon Con., 42½.
Devon Friend., 4s. 3d.
Don Pedro, 6s. 3d.
Drakewalls, 10s. 6d.
East Blue Hills, 10s. 6d.
East Caradon, 25s.
E. Chiverton, 25s.
East Lovell, 12s. 6d.
E. Roman Grav., 8s. 9d.
English Australian Gold, 10s. 6d.
Frontino, 42½.
Glenrock, 41s. 3d.
Glenroy, 5s.
Gold Coast, 22s. 6d.
Gt. West Chiv., 2s. 6d.
Gwynnion, 10s.
Gwydyr Amal., off. w.
Potosi, 11s.
Parys Copper, 8s. 9d.
Prince of Wales, 8s.
Panulicillo, 28½.
Pestana, 4s. 9d.
Ruby, 22½.
Rhodes Reef, 16s. 3d.
Richmond, 28½.
Roman Gravels, 29½.
Sierra Buttes, 30s.
S. Condurrow, 28½.
So. Darren, 15s.
S. E. Wynad, 23½.
So. Devon Uni., 17s. 6d.
Sortridge, 4s. 6d.
Simons Reef, 2s. 9d.
Tanker, Gt. Con., 5s. 3d.
Unl. Van Con., 7s. 6d.
West Devon, 7s. 6d.
West Phoenix, 12s. 6d.
West Caradon, 15s. 6d.
West Crebor, 13s. 9d.
West Polgreen, 20s.
Wheal Crebor, 23s.
Wheal Kitty, 210½.
Wheal Jewell, 2s. 6d.
Wheal Kitty, 21s. 6d.
Wheal Kitty, 21s. 6d.

IMPORTANT TO INVESTORS.—Shares in SOUND DIVIDEND and PROGRESSIVE MINES (particularly TIN and COPPER) should be bought at present prices, as many of them are likely to have a considerable rise within the next few months.
Mr. Bumpus devotes special attention to these Securities, and is in a position to afford reliable information and advice to intending investors and others.

WHEAL GRENVILLE and WEST GODOLPHIN shares are recommended for investment at present prices.

WILLIAM HENRY BUMPUS, SWORN BROKER.
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Messrs. PETER WATSON AND CO.'S
BRITISH AND FOREIGN MONTHLY MINING NEWS
—STOCK AND SHARE INVESTMENT NOTES—MINES,
MINERALS, AND METAL MARKETS—SHARE LIST,
No. 843, VOL. XVII., for JULY month, is now ready,
and will be sent to customers on application.

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MR. ALFRED E. COOKE,
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STOCKS AND SHARES FOR SALE.

Mr. ALFRED E. COOKE can sell the following lots (or any smaller number of shares) to immediate applicants at prices annexed, free of commission. Where prices are not inserted, the market price of the day will be taken, or offers may be made:—
20 Bratsberg Cop.
20 Callao Bis Gold.
20 Chile Gold.
20 Devala Gold.
20 Devon Friend., 5s.
20 Drakewalls Tin and Copper, 10s. 6d.
10 East Lovell Tin, 41.
10 East Rose Lead.
80 East Blue Hills Tin, 9s. 3d.
35 Eng.-Australian Gold 10s.
10 Frodoan Gold.
30 Gawton Copper, 10s.
10 Gunnislake (Clitters) Copper.
45 Hoover Hill.
35 Indian Phoenix, 21½.
20 Indian Glenrock Gold, 41s. 3d.
Many of the above shares can be sold for settlement by arrangement at the mid or end of August account on payment of 20 per cent. deposit. Shares not found in the above list may be purchased on application.

SPECIAL NOTICE.—SHARES IN ALL MINES AND STOCKS AND SECURITIES
of EVERY DESCRIPTION can be supplied at LOWEST POSSIBLE NET
PRICES for CASH, ACCOUNT, or FORWARD DELIVERY.

Mr. ALFRED E. COOKE is buyer of shares in all the LEADING MINES at current market price.

PROFITABLE MINING INVESTMENTS.

Mr. ALFRED E. COOKE can supply SPECIAL LOTS of shares in amounts of £25, £50, £100, to £1000, which are likely to prove HIGHLY REMUNERATIVE TO IMMEDIATE INVESTORS.

TELEGRAMS and LETTERS receive immediate attention. All shares currently dealt in, bought and sold, free of commission.

SPECULATIVE ACCOUNTS OPENED ON RECEIPT OF COVER.
SHARES BOUGHT AND SOLD AT CLOSEST NET PRICES.
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Almaden, 11s. 3d.
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Carnarvon Cop., 10s.
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Chile Gold, 12s. 6d.
Consolidated, 5s.
Devala Cen., 13s. 9d.
D'Eresby Mount, 13s. 9d.
Devon Con., 42½.
Devon Friend., 4s. 3d.
Don Pedro, 6s. 3d.
Drakewalls, 10s. 6d.
East Blue Hills, 10s. 6d.
East Caradon, 25s.
E. Chiverton, 25s.
East Lovell, 12s. 6d.
E. Roman Grav., 8s. 9d.
English Australian Gold, 10s. 6d.
Frontino, 42½.
Glenrock, 41s. 3d.
Glenroy, 5s.
Gold Coast, 22s. 6d.
Gt. West Chiv., 2s. 6d.
Gwynnion, 10s.
Gwydyr Amal., off. w.
Potosi, 11s.
Parys Copper, 8s. 9d.
Prince of Wales, 8s.
Panulicillo, 28½.
Pestana, 4s. 9d.
Ruby, 22½.
Rhodes Reef, 16s. 3d.
Richmond, 28½.
Roman Gravels, 29½.
Sierra Buttes, 30s.
S. Condurrow, 28½.
So. Darren, 15s.
S. E. Wynad, 23½.
So. Devon Uni., 17s. 6d.
Sortridge, 4s. 6d.
Simons Reef, 2s. 9d.
Tanker, Gt. Con., 5s. 3d.
Unl. Van Con., 7s. 6d.
West Devon, 7s. 6d.
West Phoenix, 12s. 6d.
West Caradon, 15s. 6d.
West Crebor, 13s. 9d.
West Polgreen, 20s.
Wheal Crebor, 23s.
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Wheal Jewell, 2s. 6d.
Wheal Kitty, 21s. 6d.
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Mr. REYNOLDS transacts business in all descriptions of Mining Property at net prices. He is in a position to obtain reliable information respecting mining shares, and advises upon such information on the receipt of a fee of 21s. He spares neither time nor expense in securing for his numerous correspondents opportunities for obtaining the best investments.

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Recommends the purchase of shares in the
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Full particulars on application.
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Fortnightly Accounts opened in all Stock Exchange Securities on receipt of the usual cover.
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HATHORN, DAVEY, AND CO. have Patterns of "Differential" Engines of all sizes, from 5 to 500-horse power, and have facilities for supplying very powerful Engines and Pumps at a short notice.

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ESTABLISHED 1853.

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SAFE DIVIDEND INVESTMENTS PAYING 4 TO 7 AND 12 PER CENT
PER ANNUM ON PRESENT OUTLAY.

SHARP'S INVESTMENT CIRCULAR.
THE JULY EDITION (post free).
SHOULD BE CONSULTED BY INVESTORS AND SHAREHOLDERS IN
STOCKS AND SHARES OF EVERY MARKETABLE DESCRIPTION.

TO INVESTORS—CHEAP SHARES—WELL WORTH BUYING.

THE MONA MINES (LIMITED),
ANGLESEA.

8000 Shares, £5 each, fully paid. Price £4 15s. to £5 per Share.
Mona has been the richest Mining Property in the United Kingdom. Some £4,000,000 has been paid in profits. I consider the Shares are "Safe" to buy at present low price.

EXTRACTS FROM SPECIAL REPORTS ON MONA MINES.

MONA MINES, 20th July, 1881.
The vast resources you have at your command in this great and wonderful Mine have enabled me without difficulty to come to the conclusion that the property is as valuable as it is great, and I have no hesitation in saying that it is one of the richest and best Mines that I have ever been my lot to examine. * * * SHAREHOLDERS MAY SAFELY CONGRATULATE THEMSELVES ON BEING IN POSSESSION OF ONE OF THE GREATEST AND RICHEST MINES IN THE UNITED KINGDOM. * * * Signed, JOHN KITTO, Llandidloes, Wales.

GWERN-Y-MYNYDD, MOID, 23rd May, 1882.
After giving the matter the most careful consideration * * * I cannot resist the conclusion that IMMENSE DEPOSITS OF ORE EXIST AT LOWER LEVELS and in the eastward portion of the property, and that by sinking Cairns' Shaft (say) 20 or 30 fathoms for fresh draughts, PERMANENT AND LARGE SUPPLIES OF MINERAL MAY BE RELIED UPON.
Signed, BENJAMIN WILLIAMS.

MONA MINES, 3rd May, 1882.
In conclusion, I cannot but congratulate you upon being in possession of a most valuable property. * * * I have not the least hesitation in saying the Shareholders will be well rewarded for the outlay.
Signed, JNO. LEAN.

The quantities of copper ore and bluestone raised during 1881 were as follows:—
Copper Ore 3,803 tons 2 cwt.
Bluestone 944 " 5 "

These raisings will be greatly increased in 1882-1883.
These mines are not half worked out, and yet £4,000,000 is stated to have been paid in profits to the former proprietors during 12 years!
SALES OF MINERAL, &c., FOR THE YEAR 1881, REALISED £15,640.

THE CHEAPEST SHARES IN CORNWALL.
HERODSFOT SILVER LEAD MINE,
ST. KEYNE, LISKEARD, CORNWALL.

In 12,000 Shares, 16s. paid. Price, Nominally, 2s. 6d. per Share.

The present company has been working about three years. They have put all things into thorough working order (such work takes time), and sold about £14,300 worth of silver-lead ore. They have a good lode rich for silver in the 215 fathom level, for 40 fms. in length and 10 fms. in depth (between the 205 and 215 levels), and the shaft is sinking to the 225 fathom level to cut the same rich lode. They have a very large extent of ore ground unworked in the north part of the Mine. Another most important feature is the driving of the 117 fathom level in the South part of the sett, where there is every prospect of opening up a good Mine independent of all present workings.

A MAP OF THE MINE FORWARDED, SHOWING WORKING.

Herodsfot has been one of the richest and best dividend-paying Mines in Cornwall for silver-lead ore. It is still very productive, as sales of ore prove, 90 tons of silver-lead ore being sold every two months; this output will increase. Half the Mine, on an outlay of £3704, paid in dividends £30,000. It is now in full working; shares can be obtained for a few shillings each, and are likely to rise 1000 to 3000 per cent. In fact at present price, no one can go wrong in buying.

TO INTENDING INVESTORS.

There is not a single Mine in the United Kingdom so well worth investing in as Herodsfot, taking into consideration the "very low price" of shares.

NOTE.—Here is a Mine proved to be rich, in 12,000 shares only, the present company has sold £14,300 worth of lead ore.
The buildings and machinery, engines, &c., upon the property cost £15,000 to £16,000, and yet the shares can be bought for a few shillings each.

NOTE.—In February, 1879, pig-lead was £19 10s. per ton, it is now £14 10s. per ton (a fall of £5 per ton in 2½ years). A rise of £3 to £4 per ton is likely to take place before long, and with increased sales of ore dividends will be resumed. Under any circumstances shares are worth picking up as a speculation.

Taking into consideration the fact of the Mine being rich in the south part, 215 fathoms deep, it is considered certain that the north part will prove as rich to the same depth, which would give 65 fathoms of ore ground in depth, and 250 fathoms in length.

NOTICE TO SHAREHOLDERS.
HERODSFOT SILVER-LEAD MINE.
FOR SALE, TWO HUNDRED AND NINETY-FIVE SHARES, in ONE LOT, for CASH. AN OFFER CAN BE MADE. I hear this mine is looking well, and selling 30 tons of silver-lead ore every two months, and these sales are likely to increase considerably. £30,000 has been paid in dividends from the south part of the mine where the lode is now rich for ore in the 215 fm. level, and there is an immense run of ore ground in the north part of the mine from the 127 fm. level downwards.

Apply or address to Mr. ALEXANDER DAVIDSON, Leadenhall House, 101, Leadenhall-street, London, E.C.

MR. ALEXANDER DAVIDSON,
STOCK AND SHARE DEALER,
LEADENHALL HOUSE, 101, LEADENHALL STREET, LONDON, E.C.

FOR SALE, the following, or any part. OFFERS CAN BE MADE, or the LOWEST PRICES will be FORWARDED on application:—
*220 Bratsberg. *40 Mona, 44½. 3d. 60 Tamar Silver-Lead.
*180 Devon Friendship. *150 Organos Gold. 130 Tankerville.
*200 East Blue Hills. 190 Parys Mountain. 40 Van.
50 Gunnislake (Clitters). 110 Prince of Wales. *140 West Crebor.
295 Herodsfot (one lot). 45 Richmond. 120 West Caradon.
200 La Plata, 21½. 25 Roman Gravels. 300 West Devon.
*200 Michipicoten, 19s. 300 Sortridge. *40 Wheal Jewell, 2s.
* THESE ARE CHEAP SHARES, WORTH BUYING FOR A GOOD RISE.
All these Mines are looking well, and at present prices shares should be bought. Buyers should first ascertain my price before going elsewhere.

GOVERNMENT INSPECTION OF EXPLOSIVES.

The annual report of Her Majesty's Inspectors of Explosives—that for 1881—has just been issued, and contains a large amount of valuable information and suggestions. The only remark of a general character, which the Inspectors feel it necessary to make, is that another year's experience of the working of the Act has served to confirm the impression before recorded as to its beneficial and eminently practical character. The improvement in the factories, magazines, and other places where explosives are handled and stored, and in the conveyance of the same, has been fully maintained during the year, and the broad result is that risks which a few years ago were very commonly and most wantonly incurred are now, speaking generally, things of the past, which serve to furnish matters of amazement or amusement to those who look back on them. And they are pleased to believe that the administration of the Act, so far at least as their department is concerned, is now conducted with a minimum of friction and trade inconvenience. The exception to the satisfactory working of the Act is now, as before, the inaction and apathy of many of the Local Authorities. The Inspectors express the hope that the misapprehension which they noticed in their last annual report as to the effect of an amending license on the privileges of a factory under continuing certificate, and which misapprehension they stated they had reason to believe had sometimes operated to prevent advantage being taken of the power of varying the terms under which the business of those factories is carried on, has now been dissipated.

An impetus has, the Inspectors state, been given during the year, reported on to two descriptions of explosives in consequence of decisions in courts of law. In one case the refusal by the Judicial Committee of the Privy Council, after a three days' hearing, to extend Nobel's dynamite patents, has established a free trade in dynamite, and as a result one large new factory is shortly about to be opened for the manufacture of this and similar explosives, while more than one application has reached us with a view to the establishment of the manufacture in or in connection with existing factories. In another part of the report they refer also to the resulting influx of foreign dynamite, and there can be little doubt that a consequence of the decision of the Judicial Committee will be to establish a keen competition in these powerful explosives, of which, no doubt, new varieties will soon assert their claims to public favour. They point out that those commencing the manufacture will find formidable difficulties to be overcome before they can make a thoroughly pure and uniformly excellent nitro-glycerine compound in the market; but that ultimately, no doubt, the benefit to the consumer will be considerable, for not only will he have his choice between several varieties of the powerful explosives, but he may expect to purchase them at a price far below that which ruled while a monopoly in nitro-glycerine preparations existed. Already dynamite is being sold in this country at some 25 per cent. below the price which was charged prior to the judgment of the Judicial Committee being pronounced. But what they have to watch is that in the competition to supply a cheap dynamite there shall be no slackening of the precautions which are necessary to the production of a thoroughly purified and stable article. No such anxieties as those indicated above attach to the result of an action which was brought by Messrs. John Hall and Son against the New Sedgwick Gunpowder Company, to recover damages for an infringement by the latter firm of the alleged patent rights of Messrs. Davey and Watson, of Rouen, in connection with the manufacture of compressed gunpowder blasting cartridges, the plaintiffs being the sole assignees of those rights in this country, and as such bound to defend the same. The case came forward for hearing before Mr. Justice Kay in November, but it did not actually proceed to trial, for counsel for the plaintiffs stated, on the case being called, that he had arrived at the conclusion that their case could not be sustained, and the claim was accordingly dismissed with costs. The result is to establish a free trade in compressed gunpowder cartridges in this country, a result which, considered solely from an inspectorial point of view, and having regard to the facts, noticed in former reports, that the use of these cartridges avoids some of the risks which attend the use of loose powder, and that they cannot be manufactured illegally in miners' houses, the Inspectors cannot affect to regard with dissatisfaction.

With regard to packing and conveyance of explosives, the Inspectors report that, generally speaking, they have no grounds for modifying a statement which has found a place in former reports, to the effect that the great improvements effected as a consequence of the Act by the adoption, except in the case of small parcels, of double packages, is fully sustained. They have not again had to complain, as in 1880, of the sending into the country of a quantity of defective foreign packages. The seizure of German and Belgian powder mentioned in last report appears to have had the desired effect, and those packages of foreign powder which they have come across during the year were of a satisfactory character, indeed greatly superior to the packages supplied by some English firms. But instances have come under their notice in which the double packages supplied were not all that the Act requires. It is a condition of the Act that the inner package shall be both "substantial" and "made and closed so as to prevent the gunpowder from escaping" (sec. 33 § 2), but they have come across bags which wholly failed to come up to this standard. At one of the northern factories, the bags were of so coarse and open a texture that even large grains of gunpowder could be easily shaken through them, and some grains were found in the barrels (outside the bags) even before the packages had left the packing room. In other instances the bags were of so flimsy and unsubstantial a character that when after being filled they were dropped a few feet, they burst and allowed the powder to escape. In other instances the mouth of the bag was insecurely fastened. In another direction, also, the packages have proved unsatisfactory—in the barrel being less stout and well made than is necessary. Here, again, the language of the Act is precise—that the outer package shall be "of such strength, construction, and character, that it will not be broken or accidentally opened, or become defective, or insecure while being conveyed, and will not allow the gunpowder to escape" (sec. 33 § 2). Consequently, a barrel of which the head is liable to become forced in or the sides broken in transit, is not a sufficient outer package within the meaning of the Act, but we have during the year come across instances of packages which had failed in one or other of these directions. It is important that manufacturers should distinctly understand that the conditions as to packages are not met by placing a flimsy or open textured, or insecurely fastened bag inside a thin, ill-constructed barrel or box, but that both the inner and outer package are required to be good, substantial, and effective.

The question of the packing of detonators, always a point of considerable importance and anxiety, has come before the Inspectors during the year. Sawdust is introduced into detonators to render them safer in transport, by diminishing the risk of the escape of any fulminate which might detached, a precaution which (with others directed to the same end), was enjoined after the destruction by an explosion of detonators in 1877 of Mr. Wood's floating magazine off Gravesend. They have never been insensible to the fact that the presence of sawdust is open to some practical objections, among which may be included the liability of the material to attract moisture, and the difficulty in some cases of ensuring the complete removal of the sawdust, from which a misfire may result; but they are of opinion that although this particular material may not be in all respects as suitable as some others which could be suggested, the introduction of some fine material within the detonator contributes largely to safety in transport, where an accident would be likely to be of a specially disastrous character, and this consideration appears to us to outweigh even the disadvantages and inconveniences which the use of sawdust entails, and which with some more suitable material might perhaps wholly disappear.

The scares from time to time created by sensational newspaper statements, such as—"A few ounces of an explosive substance may wreck half a street, or sink an ocean steamer with its living freight," have been met by a series of experiments made by the department with a view to supplement our existing information as to the effects upon masonry structures of such charges of dynamite and kindred explosives as would be likely to be maliciously employed to produce injury to property whether in an "infernal machine" or otherwise,

the measure of such charges being taken roughly at what could be conveniently carried secretly by a single individual. The experiments were made upon a small one-storied brick building with a slated roof, situated near the proof butts in the Royal Arsenal, the building, which was of light construction (the walls being only 14 inches thick), had been weakened by the subsidence of the ground upon which it stood, which had produced some settlement of the building generally. Nevertheless, the effects produced upon it by the explosion of one of the Liverpool infernal machines, before referred to, suspended in the centre of the upper room, were absolutely insignificant, while even after there had been expended upon the house, in charges of 2 to 4 lbs., the total quantity of 18 lbs. of dynamite and 4 lbs. of gunpowder, three out of the four lower walls still remained standing. The result is thus expressed in the concluding words of the official report:—"The experiments conducted by us, and the earlier experiments of the Royal Engineer Committee, to which reference has been made, appear to establish very satisfactorily that the effect of small charges of dynamite and similar explosives upon masonry structures is essentially local. Where the charge is in contact with an external portion of the structure, any effect which may be produced is almost entirely confined to a complete or partial penetration of the structure at the spot where such contact occurs; while if the charge be not in contact with any part of the structure, the result in the case of an external explosion is either wholly or nearly negative, while if occurring in the interior of a building any effect which may be produced is limited to the more or less complete demolition of the chamber or portion of the structure in, or in the immediate neighbourhood of which the explosion was effected. Effects beyond these, resulting in the more or less complete destruction and violent dispersion of a building, would depend in their nature and degree upon the relation between the charge employed, the strength of the building attached, the area presented by it, and the position selected for the charge. But any general or even partial destruction of a public building, or of a substantial dwelling-house could not be accomplished except by the use of very much larger charges of dynamite and similar substances than could usually be brought to bear without attracting observation, and the effect of a single 'infernal machine,' containing a few lbs. of explosives would be structurally insignificant."

GENERATION OF ELECTRICITY AND MAGNETISM.

Although as in the case of all practical applications of scientific discoveries, the names of but a few men are brought prominently under public notice, it frequently happens that those entitled to the greater honour of having first suggested an idea or explained a principle in such terms as to make it more generally understood, and thus afforded to others the means of achieving success are almost ignored. And this opinion is the more confirmed upon reference to the record of protected inventions preserved in the specifications lodged with the Commissioners of Patents. To the majority of persons, whether inventors or manufacturers, the search for and examination of the specifications themselves is altogether out of the question from the loss of time and money which it would involve, yet a knowledge of what has been done by others is essential to prevent disappointment either from traversing already explored and exhausted ground, or from ignorance of the recognised defects for which a remedy is desired. In the now large series of abridgments of specifications, however, which are issued at an almost nominal price, the Commissioners of Patents have given the public a ready means of ascertaining generally what has been done in any particular line of invention, and of referring at once for details whenever the pre-existence of similar ideas seems probable.

At the present moment the interest of all classes is centred in the question of the application of electricity, and as the commercial success of such application may be regarded as dating from the Paris Exhibition of 1867, one of the series just issued—Abridgments of Specifications relating to Electricity and Magnetism. Division I. Generation of Electricity and Magnetism, A.D. 1867-1876. London: Commissioners of Patents' Sale Department, Curator-street, Chancery-lane—will afford the inventor or general reader all the information concerning the early history of those developments of inventive genius which have led to the industrially successful generation of a current which has rendered electric illumination practicable. Commencing with the dynamo of Siemens and of Wilde in 1867, the progress can be traced step by step until practical success is reached. Mr. Henry Wilde (March, 1867) states that in his arrangement one machine acts by the residual magnetism of an even number of bar electro-magnets, and the same number of coiled keepers. The electro-magnets are circumferentially fixed in two sets between rings, and a circular brass frame carrying the keepers rotates concentrically between the two sets and between the opposing poles of the electro-magnets. The polarity of the electric magnets is alternately north and south. The electro-magnets are excited by another electro-magnetic machine. The extremities of the cores of the electro-magnets are made to overlap so that the magnetic circuit is never broken during the movement of the apparatus. But although Wilde excited his electro-magnets with a separate machine, it is evident that he did not regard this as absolutely necessary, for a second part of his invention consisted in devoting two of the coiled keepers to exciting the electro-magnets, their alternating currents being turned in one direction by a commutator. He explained, moreover, that another method of separating the current which excites the electro-magnets from the working current is to coil each keeper with two coils. The plan of coiling separate circles of keepers fixed in an iron disc, with separate coils as described in his patent of 1861, could be used to obtain separate electric currents from the same axis. The residual magnetism of his machines of 1863 and 1865 may be used to excite its own electro-magnet by having two magnet cylinders one above the other, the alternating current in the upper and smaller cylinder being turned in one direction by a commutator.

This machine of Wilde may be considered the prototype of the dynamo-electric machines which are now used, and to him is due the credit of having indicated the direction in which success was to be looked for. In the abridgments now under consideration dynamo-electric machines are classified according as the inventors adopt armature cylinders longitudinally coiled, armatures with two coils, a circular arrangement, coils between the magnetic poles, commutators, a horseshoe arrangement, the system of using part of the armatures to excite the electro-magnets, ring armatures, or two armature cylinders longitudinally coiled. In a similar manner condensers are classified under the heads of circular, continuous in length, helically wound wire, lead, plumbago, thin sheet metal, and worked directly by a galvanic battery. In connection with magneto-electric machines inventors appear also to have been active, and a glance down the index reminds one of many whose names were once very prominent although now scarcely heard of—Hjorth, Wheatstone and Stroh, Highton, and others being among their number. The attention which has been paid to machines of this class by the number of names coming under each sub-division, and these also show that the circular arrangement is that most in favour with the inventors; machines of Werdermann's, Bürgin, and Lontin coming in this class. Amongst inventors of secondary batteries it appears that Desmond Fitzgerald's comes first, for in August, 1868, after describing a compound voltaic arrangement, he states that a secondary battery is constructed in a similar manner with the exception of surfaces of dissimilar metals, and by February, 1869, he seems to have nearly perfected his invention, for he then states that a secondary may be similarly constructed with one metal only, instead of with two dissimilar metals. But the first indication of the intentional storage of electricity appears to be that of Gaston Planté, who, after describing apparatus for lighting lamps, candles, and similar purposes, explains that the secondary pair is prepared before it is used for lighting purposes by passing through it in opposite directions once for all a comparatively powerful current. This preliminary preparation enables it to accumulate a considerable amount of electric force. The secondary pair thus prepared is maintained by the prolonged action of a weak current from three or four elements of a battery composed of copper, sulphate of copper, zinc, and pure water. The secondary pair may be used, he adds, "after disconnection from the charging battery even days after charging."

Faure, whose name is now scarcely known except from his connection with his invention for the storage of electricity, appears previously to have laboured in quite another direction, most of his former connections having been connected with thermo-electric batteries. He provisionally specified a battery of this class in June, 1872, but did not proceed to a patent, and in October, 1873, he did the same with another invention, but by this time he had a magnetic arrangement in connection with the thermopile. The same lapse occurred with his invention of August, 1875; yet Faure's case is only one of hundreds showing the many failures and disappointments to which an inventor has to submit before he achieves success, and the justification for securing him full protection when his laborious efforts have at last resulted in something of real public utility. The abridgments give a good idea of the nature of the inventions specified, and the volume will prove well worth the careful study of all who take interest in a subject which promises to play an important part in the near future in providing us with additional domestic and industrial advantages.

REFINING METALS BY ELECTRICITY—ART AND METAL DEPOSITING.

The more economic production of electric currents through the introduction of dynamo-electric machines has done so much to facilitate the industrial application of electricity that we have now come to regard it almost as much as one of the ordinary forces at our disposal as wind, water, or steam, yet not only are the dynamo machines widely different from each other in form and construction, but also in the kind of electricity, if the term may be used, which they generate. A current of high tension, which gives very good results when applied for electric illuminating purposes, would be of no value for the purpose of electro-deposition of metals, and even amongst dynamos producing currents of low tension the economy varies considerably. Reference has already been made in the Journal to the excellent results produced with the Elmore dynamo in the manufacture of tin-plates by the electro-deposition of the tin, and in the extensive works which Mr. Elmore has now fitted up for the Electrolytic Company at Charlotte-street, Blackfriars-road, the value of his invention for the deposition of all kinds of metal can be seen to the utmost advantage. As an instance of the extensive character of the arrangements it will suffice to mention the nickel tank, which is 24 ft. long, 6 ft. deep, and of proportionate width, and is therefore adapted to nickel-plate a cylinder over up to 5 ft. 6 in. diameter at one immersion, and the manner in which the work is done leaves nothing to desire.

Amongst the advantages of the Elmore dynamo is the very important fact that it requires but little attention, which is a very important consideration in large operations. From the moment it is set in motion, by means of a belt from the shaft of an ordinary steam-engine, the electric current is developed in considerable quantity—to such an extent, in fact, that a piece of stout wire placed between the poles instantly becomes red hot and fuses. In order, however, to control the powerful current produced, and which would be far too energetic for small quantities of work, resistance coils are furnished which will so control the current that the smallest article may be placed in the bath without fear of its receiving too rapidly the deposit of any given metal. In fact, by a careful application of the resistance coil it is quite possible to regulate the current so that an article no larger than a thimble can be properly coated in a bath holding 2000 gallons; and when the switch is moved from its lowest to the highest point, the full amount of electricity is allowed to pass, and the machine is capable, not only of plating a 2000 gallon bath full of work, but several. Indeed, if properly placed, a "C" dynamo-electric machine will yield electricity to work a nickel, bronze, gold, silver, and an electrolytic bath. Stout copper connecting wires are used for this purpose, and to these other wires are attached and communicate direct to each separate bath. The machine not only deposits the metal very smoothly, but in much less time.

At the present time there are in process of manufacture at the works 10 dynamos for Messrs. Williams, Foster, and Co., of Swansea, which will be used for depositing 10 tons of copper per week, each dynamo requiring 10-horse power to run it; and one large machine is in course of construction for the Fahlun Mines, which will deposit no less than one ton per day. It is scarcely necessary to add that the copper obtained by electric deposition is absolutely pure, whilst it is practically impossible to obtain copper refined by other means with much less than 1 per cent. of impurity. The Elmore machinery is already extensively used, and a visit to the Electrolytic Company's works can leave no doubt that the process is very efficient, and that the company possess facilities for both manufacturing and applying the machinery which will ensure it a large amount of business.

MINING EXHIBITS AT THE ALEXANDRA PALACE.

It is not unlikely that the mining exhibits may fail to secure their fair share of attention from those more immediately interested in them from the very general title chosen—International Exhibition of Means and Appliances for the Protection and Preservation of Human Life—for the interesting collection at the Alexandra Palace, officially opened on July 1, but to which daily additions are still being made, yet they will well repay a visit, and much information may be obtained from an examination of them. It may be mentioned that the proposition of the Exhibition was originated and started by Mr. J. Bucknall Smith, C.E., who subsequently obtained the valuable assistance and co-operation of Mr. Lawrence Saunders. In the respective capacities of honorary superintendent and honorary secretary, these gentlemen succeeded in obtaining influential and distinguished patronage, and further, an honorary committee, headed by the Lord Mayor, and incorporating many learned and scientific representatives of the kingdom. Under the energies of its promoters, and the favourable reception with which it met, an important, interesting, and extensive Exhibition has been organised, covering about an area of 30,000 square ft., and involving about 300 exhibitors.

An entire class is devoted to mining safety appliances, and of a few of these mention may here be made. There are Purdy's Cooke's and the Protector safety-lamps; and a specimen of Morgan's invention for drawing the gases from coal and other mines. Mr. S. Humble has a working model of colliery headstocks, with King and Humble's patent safety detaching hooks to prevent accidents by over-winding. The British and Foreign Safety Fuse Company show a safety fuse for igniting all kinds of explosives for mining, quarrying, and submarine purposes. Messrs. W. Brunton and Co. exhibit samples of safety fuses for conveying the fire to the charge in blasting operations. The want of some safer and surer method than the "straw or squib" for conveying the fire to the charge in blasting, led to the introduction of the miners' safety fuse (originally the invention of a Frenchman), various improvements in the manufacture (particularly that of coating it with gutta percha, introduced by Mr. W. Brunton, M.I.C.E.) has, owing to its greater safety, certainty, and economy in comparison with every other method of blasting, led to its almost universal use in mines, collieries, railway works, quarries, and other places where blasting with any explosive is carried on. Since the introduction of explosives fired by detonators, Messrs. Brunton and Co. have paid special attention to the manufacture of a safety fuse adapted for the purpose, and have now introduced a taped gutta percha fuse which, it is claimed, will meet every requirement in any climate. Nos. 4, 5, 6, 7, and 8 are also adapted for use with detonators.

A new method of coal getting by compressed lime cartridges is exhibited by Messrs. Smith and Moore. The advantages claimed for this process are—absolute immunity of risk from explosions; a means of avoiding minor accidents from falls of roof and sides; diminution of labour to the collier; and an increased percentage of large coal. Mr. D. B. Jones shows a patent apparatus for saving life in collieries; it consists of a vessel capable of containing air compressed to several atmospheres, which by simple arrangements may in case of an explosion in a colliery supply any one who has escaped violent injuries with breath while on his way to safety, and may also enable a rescuer to give immediate assistance, who, while breaking from one himself, may be able to take several other such vessels in with him. It is proposed that these small vessels shall be filled from

large reservoir stored to the requisite pressure. An anemometer, manufactured by Messrs. Lampen and Theodam, the exhibitors, records the velocity the air is travelling at, indicating the correct register, and is adjusted to give exact speed of the wind without any deductions for friction. Mr. H. M. Edwards shows amongst other things Bidder's patent magnetic lock lamp, Clanny pattern. Bidder's patent lock lamp in section, showing the action of the eight-bar magnet upon the two iron discs in bottom plate, and through them upon the spring and pin which are the means of securely locking and unlocking the lamp. It is impossible to open the lamp without the magnet in consequence of Edwards' improved oval slot in lock ring of lamp working into canted locking pin. This system can readily be adapted to any other make of lamp; and the "Nostell" safety detaching hook for holding the cage in head gear in case of an overwind.

The Swansea Safety Fuse Company show their patent safety blasting fuse, which is extensively used by engineers. The Pepper Mill Brass Foundry Company exhibit their patent improved, combined, self-registering, winding signal colliery indicator. The large dial shows the position of the cage in the shaft, a gong warning the engine-man when the cage is near the top, to prevent over-winding. The small dial is specially adapted for water winding, registering the number of windings per day, and showing how the engine-man has been attending to his duties, and indicates by pointer on the clock face. The top dial is the signal indicator, showing the number of signals given from the bottom of the shaft, thus preventing accidents, which often occur through the engine-man mistaking the number of signals given when not registered. The speed indicator in brass case registers the engine strokes in pumping, and in case of winding water the number of windings for any given time. The register accurately shows whether the engine-man has fully discharged his duty. Messrs. W. Teague and Co. have sent one complete model of the principle for ventilating collieries and other mines—a fan to cause a vacuum, and thus give motion to the poisonous atmosphere below, by which the volume of air sent adrift is largely increased, without increasing the size of fan or adding extra motive power. They also show a full size ventilator as used in Carn Brea Mines and at Dolcoath Mine, when it exhausted the fumes of three cans of damp gunpowder exploded in a large boiler in 53 seconds.

FOREIGN MINING AND METALLURGY.

The Belgian iron markets exhibit signs of marked firmness, the orders coming to hand being sufficient to sustain business pretty generally. The principal works have all the employment which they require, and if they have shown an eagerness to obtain new business, this was due to their wish not to lose their clientele rather than from any necessity to secure orders at any price. Even forges of secondary importance begin to see their order-books filled little by little, and we may accordingly anticipate much firmness in prices, and even some attempt to obtain an advance. There have been rumours of an intention to carry the basis price of iron to 57. 8s. per ton; this is not yet generally admitted quotation, but affairs appear to be tending in such a direction. English casting pig has been well maintained in Belgium at 27. 11s. 2d., and for small deliveries at even 27. 12s. per ton. The proprietors of most of the Belgian blast furnaces now show a disinclination to accept the rates to which they agreed three months since. Iron is quoted upon the Belgian markets at 57. 4s. and 57. 8s. per ton. Plates have supported their previous quotations at 77. 4s. per ton; boiler-plates have made 87. per ton. The exports of rails from Belgium in the first five months of this year amounted to 7969 tons, as compared with 14,013 tons in the corresponding period of 1881. The exports of plates from Belgium in the first five months of this year were 15,393 tons, as compared with 14,136 tons in the corresponding period of 1881. The exports of rolled iron from Belgium in the first five months of this year amounted to 75,945 tons, as compared with 68,968 tons in the corresponding period of 1881.

In the French iron trade business continues to present a good tone. The orders on hand are numerous, and the foremen of the Nord have maintained former prices without hesitation. The increased strength of the trade has made itself felt at Paris; merchants' iron has brought 87. 4s. per ton, and girders 87. 12s. per ton. Contracts are about to be let for 187,432 tons of steel rails in France—36,456 tons, to be delivered in 1883, 109,650 tons in 1884, and 41,326 tons in 1885. These steel rails are required for the French State railways, and having regard to the tone of affairs the tenders sent in will probably be somewhat high. The Jeuf and Mont St. Martin Steelworks are expected shortly to be brought into activity. The German iron trade presents a sustained improvement. Rolled iron especially has been well supported, the demand being sufficient to induce producers to adopt a quotation of 77. 5s. per ton. Plates, girders, and iron for building purposes have been especially in demand, numerous adjudications supplying employment to the steelworks. At a recent adjudication at Frankfurt the tenders for steel rails sent in by the Bochum, Krupp, and Phoenix Works ranged between 77. 15s. 9d. and 77. 16s. 9d. per ton. Bars have made 77. 5s. per ton upon the Westphalian markets. The Austrian iron trade presents a favourable aspect, the steelworks and mechanical construction establishments being especially well off for orders. Several important adjudications are on hand, among others one for 20,000 tons of rails for the Galacian railways. The Kraus workshops have received an order for 24 locomotives at 1400l. each. An order for 1000 trucks is also anticipated on Hungarian account. The intelligence received with respect to the German coal trade is favourable.

There appears to be every day a more and more decided revival of affairs in the Belgian coal trade. It is even astonishing to see with what rapidity progress is made. Deliveries have been upon a considerable scale for almost every description of products, and colliery proprietors are generally satisfied with the state of affairs. Working operations have been resumed on Mondays in almost all the Belgian collieries, and it is believed that this is likely to continue, as the requirements of consumption are considerable. A characteristic feature in the situation is the desire of customers who have contracts in course of execution to renew them if possible, although they may still have more than three months to run. This shows their apprehension that at a subsequent period they may have to pay higher terms. The imports of coal into Belgium in the first five months of this year amounted to 373,431 tons, as compared with 383,871 tons in the corresponding period of 1881. In these totals Prussia figured for 141,834 tons and 155,808 tons respectively, and Great Britain for 94,748 tons and 99,176 tons respectively. The imports of coke into Belgium in the first five months of this year amounted to 7070 tons, as compared with 9809 tons in the corresponding period of 1881. The exports of coal from Belgium in the first five months of this year amounted to 1,594,395 tons, as compared with 1,583,516 tons in the corresponding period of 1881. The exports of coke from Belgium in the first five months of this year amounted to 447,304 tons, as compared with 398,595 tons in the corresponding period of 1881. In these totals the exports of coal to France figured for 1,505,144 tons and 1,490,916 tons respectively, and the exports of coke for 378,468 tons and 330,444 tons respectively.

EUROPEAN GUIDE.—The July edition of this guide gives an excellent list of European watering places and pleasure resorts, with a succinct statement concerning each that the reader may know whether they are celebrated for their scenery, sea air, mineral waters, and so on, and also what is the fashionable season. With regard to the waters it is also shown what particular diseases they are recommended for. The Guide will be very useful to travellers generally.

HOLLOWAY'S OINTMENT AND PILLS—DISEASES OF THE BOWELS.—A remedy, which has been tested and proved in a thousand different ways, capable of eradicating poisonous taints from ulcers and healing them up, merits a trial of its capacity for extracting the internal corruptions from the bowels. On rubbing Holloway's Ointment repeatedly on the abdomen a rash appears, and as it thickens the alvine irritability subsides. Acting as a derivative, this unguent draws to the surface, releases the tender intestines from all acid matters, and prevents inflammation, dysentery, and piles, for which blistering was the old-fashioned, though successful, treatment, now from its painfulness fallen into disuse, the discovery of this Ointment having proclaimed a remedy possessing equally derivative, yet perfectly painless, powers.

Meetings of Public Companies.

NEWPORT ABERCARN BLACK VEIN STEAM COAL COMPANY.

The ordinary general meeting of shareholders was held at the company's offices, St. Mary Axe, on Thursday, Mr. THOMAS BEYNON in the chair.

Mr. A. R. MOLLETT (the secretary) read the notice convening the meeting, and the directors report and statements of accounts were submitted.

The directors reported that the quantity of coal raised during the year was over 367,000 tons, and the profit without providing for the reserve and other funds, and for interest paid 24,505l. 17s. 6d. In addition to the 1353l. 9s. 9d. written back to the credit of repairs, renewal, and depreciation of machinery fund, and the 1000l. carried to the credit of the reserve fund, the directors have placed 1000l. to the credit of an insurance fund in order to meet any losses that may arise to the company under the Employers' Liability Act; the deductions together with amount paid for interest, &c., on debentures and building loan leave 18,592l. 19s. 5d. available for dividend. The directors now recommend a dividend on the ordinary shares of 7 per cent., making, with the interim dividend paid in January, 10 per cent. for the year, also a dividend at the rate of 10 per cent. per annum on the preference shares. These payments will leave a balance of 914l. 1s. 3d. to be carried forward. The directors have to congratulate the shareholders that out of the sum of 39,850l. raised on debentures only 5850l. now remains unpaid. Of this amount 2200l. will become due in October, and will be then paid off, and the directors will be glad to pay off the remainder when the holders consent.

The CHAIRMAN, in moving the adoption of the report, congratulated the shareholders on the very successful working of the colliery during the time for which the accounts had been made up. He believed they would agree that 367,000 tons of coal was a large quantity to get out of one shaft in a year, and that the selling of it was not a small thing for the agents. He was happy to say that they had sold well, and he believed they had realised from this colliery a larger price per ton than had been realised by any other colliery in the valley. This large amount had been got out without any serious accident occurring to the colliery or the people in it. The company had made a gross profit of 24,505l.; they had written back to repairs and renewals, 1353l., and had placed 1000l. to the credit of an insurance fund in order to meet any losses that might arise to the company under the Employers' Liability Act. This left 18,592l., and after declaring a dividend of 7 per cent. for the last six months, making 10 per cent. per annum, it left a balance to be carried forward of 914l. 1s. 3d. This, he considered, a most satisfactory state of things. As managing director of the company he gave every possible attention to the interests of this great colliery, and at the same time he devoted a considerable amount of time to the well-being and contentment of the people employed. (Hear, hear.) They would observe by the report that 65 cottages had been erected, leaving 18 still to be finished, and this would make 148 in all. These cottages stood in the prettiest part of the valley, and improved instead of injuring the prospect. They cost about 110l. each, and the streets and drains and other matters would bear comparison with any in the City of London. The men had taken these cottages even before they were completed. The company had also erected what they called a colliers' hall, which would be finished and opened in about three weeks, and which would contain a reading-room, concert-room, and refreshment bar. It was his wish that the men should eventually become the landlords of their own houses, as they would then be the last men to strike. He moved the adoption of the report and accounts.

The Right Hon. HENRY CECIL RAikes, M.P., seconded the resolution, and added that the shareholders would be glad to hear from the managing director the details of what had been done for their employees. As long as such an interest was shown in the men by the management it would be one of their best securities against the recurrence of a strike. He would like to express the acknowledgments of the company to the managing director and those under him, who so ably conducted their affairs.

Mr. JOHN CONY supported the resolution. It was a matter of congratulation that the colliery was not mortgaged to so large an amount as at this time last year. He could confirm what had been said, that there was no colliery in Wales which had done equal to the Newport Abercarn, or which could show a balance-sheet equal to this for the past year. They ought, therefore, to be thankful for being connected with a property which even in the worst times could make a profit, while when prices advanced a little they could make a larger profit than 10 per cent. The resolution was then put to the meeting and carried *unanimously*. The CHAIRMAN next declared a dividend of 7 per cent. on the ordinary shares, and at the rate of 10 per cent. per annum on the preference shares, less amount already paid.

The retiring directors, Messrs. Lishman and Quinlan, were re-elected. Mr. QUINLAN, in returning thanks, said: I thank you very much for the proof of confidence you have displayed in re-electing me at the end of my three years' term, and I have also to thank those many absent shareholders who, as a mark of their esteem and confidence, have sent me proxies on my own and Mr. Lishman's behalf. I may mention that I am an original shareholder: I hold at the present moment 124 fully paid-up shares, and to the best of my belief I have attended every meeting of this company from its commencement. About the time you elected me and Mr. Lishman the company was, you will remember, in a very critical condition; the ominous words "wind up" were even heard in connection with it, and I think I may with perfect correctness say that it was entirely due to the exertions of Mr. Lishman, myself, and our friends that the company was then saved from ruin. At the solicitation of those friends who I may remark are among the largest shareholders of the company we consented to join the direction, and during the three years that have since elapsed I can honestly say that we have spared neither thought, time, or trouble in our endeavours to promote the interests of the company, and we have materially contributed to place you in the enviable position, which the shareholders in a coal mine, you at present occupy. As we did not come on the board of this company by our own seeking, or for any reason of personal advantage, neither shall we remain on it, or share the responsibility of direction, if any course of action or system of management is persisted in which we consider seriously detrimental to your interests; and in saying this I regret very much to inform you that within the past few days serious difference of opinion has arisen between the old members of the board and Mr. Lishman and myself on matters which we conceive to be of vital importance to the future prosperity of the company, and that a resolution was passed by a majority of the board yesterday which, to use a Parliamentary phrase, has compelled us to seriously consider our position. I trust sincerely these differences of opinion may be reconciled at the next meeting of the board, but I can only say at present that if that resolution is not modified we shall feel it our duty to ask you to meet us again shortly, in order that we may place the facts before you, and to request you to decide what course you consider it is most to your interests should be pursued.

Mr. LISHMAN said he agreed with most of the statements of Mr. Quinlan. Mr. RAIKES said he listened to the observations of Mr. Quinlan with surprise, that a gentleman holding such opinions should have presented himself for re-election. Should Mr. Quinlan choose to call the shareholders together the board would be ready to meet them with a complete answer to the theories which he might wish to ventilate. (Hear, hear.) The auditor, Mr. Bagshaw, was next re-appointed, and a vote of thanks to the Chairman and directors closed the proceedings.

WHEAL PEEVOR MINING COMPANY.

A four-monthly meeting of adventurers was held in the account-house, on Thursday.—Mr. T. PRYOR (the purser) in the chair. The statement of accounts showed that the labour cost for the 16 weeks was 3734l.; merchants' bills, 1506l.; bankers' charges, 46l.; lords' dues, 205l.; making a total of 5472l. On the other hand, there had been 72 tons of black tin sold, at an average price of 55l. 13s. per ton, which realised 4010l.; extra carriage, 11l.; tin levings, 1832l.; West Peavor water charges, 100l.; discount received, 12s.; making a total of 4978l. The credit balance brought forward was 672l., but the loss now made left a balance against the mine of 514l.

The CHAIRMAN said the accounts were not so satisfactory as he expected they would be at the last meeting, but this was accounted for to a great extent by the reduced price of tin that they had had, as well as other mines, to contend with. At the last meeting the tin sales averaged 62l. 15s., and this time they were only 55l. 13s., making a difference of nearly 8l. This of itself would make up a large amount of the loss, and since the last meeting their stopes had fallen off to some extent, and consequently their returns had not been as much as they expected at the last meeting.

The agents reported as follows:—We beg to state that we have cut the lode at the 100 ft. level, which crossed one shaft at the 90, and which carried our main or south lode with it. The distance we have driven at the 100 to cut this is 12 fms. We have now cut into it fully 4 ft., and as far as seen the lode is not near so hard as it was at the 90, being of a more soft and prany character. This change we consider is produced by our main lode, and it is of a favourable character. We have not yet ascertained the width of the lode, but it contains tinstuff similar in quality to what we had at the 90. We have our main or south lode yet to reach, which we expect to cut directly adjoining, when we cut through the lode we now have. By continuing this cross-cut for about 12 fms. more we expect to cut the middle lode. Altogether we consider our prospects at the 100 to be very encouraging. We also propose cross-cutting south at the 100 and commence sinking the engine-shaft for another level as soon as possible. The lode at the 90, west of cross-cut at the north part, is worth 7l. per fathom. We have not as yet cut the cross-course in the 90, west on main lode, but are expecting daily to do so, the end being in the influence of the same. We have eight men in this end in order to push it on with all speed, so as to reach the run of tin ground we have to the west of the cross-course gone down in the bottom of the 80, both on the main lode and the middle lode. The best of our tin ground in the upper levels has always been to the west of the cross-course, and at the 90 ft. level we shall have a longer run than in any of the upper levels, as the cross-course is underlying east, and consequently the best run of tin ground considerably lengthens as we go down in depth. The lode in the 80 ft. west of cross-course on middle lode, is worth 15s. per fathom. This end has passed through profitable tin ground for fully 30 fms. in length, which we expect to meet with in the 90 by a cross-cut from main lode west of cross-course. The lode in the rise back of the 80 ft. level west of cross-course on middle lode is worth 10s. per fathom. The lode in the 70 ft. level west of cross-cut on middle lode is producing low quality work for tin. We are driving two cross-cuts north, one at the 45 and the other at the 60 ft. levels. Both of these are east of the engine-shaft, the latter being next of

Nicholl's cross-course, for the purpose of cutting the middle lode. We look upon this as a good point, as all the branches we have seen in the eastern part of the mine are more productive in proportion than the lode itself which we have been working on. We have seven stopes working on tinwork, the lode in each being worth about 2l. per fathom. We have also 12 pitches working on tribute, employing 30 men and boys, at tributes varying from 5s. to 12s. in f. We fully thought at the time of our last meeting we should have returned more tin during the past sixteen weeks than we have; but, unfortunately some of our best stopes fell off in produce, which is the main cause of the reduction in our returns, but we fully expect when we effect communication between the 80 and 90 ft. levels west of cross-course, and open up stoping ground there, that we shall again increase our returns.

Capt. WHITE said he could assure them that both Capt. King and himself would have been very glad as agents of the mine to have been able to have shown them as satisfactory returns that day as in the past, but he found on looking over the statement of accounts that they commenced their dividends on April 11, 1878, and they had paid them up to the present successfully, and he did not see why they should not be able by and by to pay similar dividends again when they got into the run of tin ground west of the cross-course, and as their best tin ground upwards was westward, and having a splendid run of tin ground in the 80 and 90 they naturally expected to find it below when they got through the cross-course, and they should at once rise and communicate stoping ground west of the same. The flat lode came in at the south at the 100, and he was pleased to tell them that the nature of that lode was far more congenial and satisfactory than it was at the 90. It was full of prany bunches, which they looked upon as most favourable. At the 90 the lode was very hard, and the difference in it now he attributed to the influence of the south lode, and he believed it would be found when they drove another 12 fms. that they would have a capital lode. With the south lode and the middle lode they had at the 100 ground as rich as they ever had in their upper levels. He did not know whether they should be able to improve very much in the next quarter, but he believed as soon as they got through at the 90 and got stoping ground there they should be able to resume their dividend in the future as in the past.

Capt. WHITE, in reply to Mr. F. W. MICHELL, said they had about 70 fms. of ground in the bottom between the 80 and 90, worth from 50l. to 30l. per fathom.

Mr. MICHELL estimated this to be worth 20,000l. for tin.

The accounts were passed and a vote of thanks was passed to the Chairman and the agents of the mine to whom the adventurers had owed much in the past. The Chairman and the agents replied, and this terminated the business of the meeting.

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS &c
1, ST MICHAEL'S ALLEY CORNHILL, LONDON

Nearly twenty years ago the weekly information which had previously been published for a great number of years in *WATSON BROTHERS' Mining Circular* was transferred to the columns of the *Mining Journal*, with the following announcement.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, published annually in the *Mining Journal* for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to recommend mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash, for the usual fortnightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charge for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in on the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines reported for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

Messrs. WATSON BROTHERS take this opportunity of stating that on July 1 they took into partnership Mr. H. J. DEAN, who has been for a number of years associated with the firm, and Mr. W. H. WATSON, who has had some years experience of practical mining and engineering in Cornwall, and is the son of the senior partner. The firm will still be called that of "Watson Brothers."

The number of weekly communications received from almost every part of the world in regard to remarks in the Circular indicate so plainly how much they are read (and, we trust, appreciated) that they will be continued by the same writer.

Indeed, while new blood is introduced to attend to the more laborious and mechanical details of the business, the old will have more time to devote to their different departments.

When we wrote our remarks upon Langford last week we had not seen the letter of "Enquirer," who writes anonymously. What we did write will, we trust, have satisfied shareholders as to the general position and prospects of the company; and we may add, in reply to "Enquirer," that the extracts he gives from Nov. 12, 1881, to March 18, 1882, were all given from information in letters of Mr. Doble, including estimates of costs for the matte. So far as the experiments were carried out they were, we may add, a success, and show that the halvans are a valuable property. It was thought at first that these ores could be returned at a profit at the borrowed furnace while the machinery was in course of erection on the mine. This furnace, however, was constantly breaking down, and the cost of repairing it so great that early in April a director who had just joined the board visited the mine, and upon his report it was decided that all the energies at command should be directed towards getting the 60-in. pumping-engine, the drawing-engine, and other machinery to work as the first necessity. We are able, however, to give this director's opinion of the halvans and the matte. After describing the inefficiency and expense of the furnace which he went to see, he said that only 6 tons had been run through, and that Doble had told him the last run had turned out a solid piece of matte weighing about 2 cwt., and it had been stolen from the store-house. The director added, "I firmly believe in the process answering if properly managed. There is no doubt of our having any amount of halvans ready to reduce. The process seems to be very simple, and the materials required not expensive, and a good furnace properly started ought to run a large quantity of matte without requiring repairs."

When the 60-in. cylinder pumping-engine was purchased it was thought that it could be erected in the old engine-house, but it was found that it could not be got in, consequently a new house for this, as well as for the drawing-engine, had to be built, and it was wisely determined to build this and get the pumping-engine to work before erecting furnaces for the halvans. These are nearly complete, and we hope the engine will soon be at work. When the company was first started it was stated by us that the directors had each taken 1000 shares, another gentleman 2000, and the secretary 1000, making about half the number of shares said, in round numbers, to have been applied for on Nov. 5. No shares were issued at a premium, and the discrepancy hinted at by "Enquirer" as to the number actually allotted is easily accounted for. A gentleman who had applied for 2000 shares (for which he paid 1000l. cash), offered to take also fully paid up shares for a 60-in. pumping and other engines, and machinery. This was agreed to by the directors, on condition that the company's engineer reported the same to be in good condition, and in every way adapted for the company's requirements. The report being satisfactory on these points, certain shares which had been held in reserve for the purpose were allotted for the machinery, and the company got a very advantageous bargain indeed. These shares made up the 18,178 referred to, and lest it should be inferred that the difference of 1178 shares referred to by "Enquirer" represented the price paid for the machinery, we may at once say it was not so. Modifications were afterwards made in the applications we referred to, in round numbers, as 17,000 the first week. For instance, one alone for 1000 was changed into 500.

If "Enquirer" is a shareholder he will find on enquiry at the office of the company that the directors, so far from thinking i

inexpedient to afford any information before the annual meeting desire that any and every information regarding the mine and the company should be given, as it always has been given to any shareholder who applies for it. Our general remarks of last week were made more in reply to those who complained to us of their being no market for the shares just at present. And in regard to finances, any shareholder may learn at the office that all the machinery at the mine is paid for, that there is a good balance in hand, and 30000 out at interest, besides the reserve of 6822 shares. And let us hope that the very large interest held by the directors will be a sufficient guarantee that the interests of "one and all" will be looked after.

A correspondent calls attention to a few omissions and corrections in our remarks upon the Trelawney district. He states that Trelawney paid 56,000, and Trehane, which we omitted to mention, paid, he says, between 40,000, and 50,000. We gave the profits of Trelawney up to the time Mr. Pryor became manager in 1861, when he made a call of 17. 10s. per share to carry the mine on. We were shareholders in Trehane from the commencement; it paid its first dividend of 896, in 1850; in 1851, 1024; in 1852, 1284; in 1853, 2041; in 1854, 3072; in 1855, 2048; and this was the last, making a total of 9216. The ore dipped, if we remember rightly, into Trelawney, and we are also under the impression, though it is impossible to remember every circumstance that took place nearly 30 years ago, that Trehane and also Honeysfield were then added to Trelawney, and that after the call the "united family" paid small dividends till June, 1867, when they paid their last. Trehane, as a separate concern, paying up to 1855 9216, and Trelawney United, up to 1867, 541. 14s. 6d. for 1024th share, as anyone who cares to refer to the *Mining Journal* for 1867 can see for himself. After speaking of Trelawney and Mary Ann, we spoke of Wheel Wrey and other mines, which were very rich and shallow, and founded our "shallow" remarks upon them. Few people have more reason to remember Trelawney and Mary Ann than we have. As we said before, we introduced the former to London, and it was held very largely by us and our friends. When it became rich, it was evident that the riches were running south, and then going into the adjoining ground, which the agents took up themselves and called "Mary Ann." Trelawney was then in 260 shares, so the agents, to show their generosity, divided Mary Ann into 520, and offered 1-520th at cost price to each holder of 1-260th Trelawney. They bagged half the mine for themselves. But having in remembrance the case of Treavean, which had been tried in the law courts some years previously, and decided by several judges that the agents of a mine obtaining knowledge through their employment that their lodes were running into certain grounds could not take such grounds for their own benefit; we called a meeting of Trelawney shareholders at this office, and resolutions were passed to take proceedings for the recovery of the whole mine. These proceedings went on for a year or two; we then recovered the whole mine for Trelawney shareholders, and the agents were saddled with nearly 6000, for restitution and costs.

The 102 level east at Prince of Wales is 3 ft. wide, producing good stamping work for tin. This end is getting near the cross-course, east of which will be under the run of ore ground in the levels above.

East Blue Hills is improving beyond the cross-course.

Since the above was written the agent of Prince of Wales writes, under date 13th—"In blasting down the lode in the 102 east, which is 3½ feet wide, producing good tin stuff, to-day we discovered in the extreme end 1 ft. wide of it rich copper ore, and appears as it will further improve."

At Great West Chiverton there are good stones of lead in a winze on the deep adit.

EXTRACTING GOLD FROM SILICATES.

The general opinion entertained that silicates and aluminates of gold do not exist has not prevented inventors from attempting to extract them, and as all discoveries must have some date associated with their recognition, it is scarcely safe to place the negative evidence given by chemists against the positive results which certain inventors allege that they have obtained. If the discovery of these salts of gold have really been made there is justification for the supposition that it will fight its way like the electric light and electric power inventions have done, and it is to be hoped that the inventors will derive their fair share of the profits to be derived from the extraction of precious or other metals from refuse which is not at present acknowledged to contain them in sufficient quantity to make their separation remunerative.

Among those who claim to be at present obtaining gold from its silicates is Mr. J. P. KAGENBUSCH, of Cornwall Road, Lambeth, so that the specification of his most recent patent will be of general interest; he states that the object of his invention is the extraction and separation of precious and other metals in an improved and economical manner from silicious, aluminous, and other substances, and in the application of the same process for obtaining and manufacturing aluminium bronze from the aluminous residues produced therefrom. He first pulverises and then mixes them with charcoal, the time required for roasting being regulated by the component parts contained in the minerals being treated. When the roasting is completed the mineral is thrown red-hot into water, by preference cold, well stirred and washed clean. The minerals are then dried and mixed with the following fluxes for smelting:—Soda ash (carbonate of soda) potash (carbonate of potash) borax, and other fluxes used for smelting minerals, such as lime, salt, rocksalt, flour, spar, &c., or a mixture of the same, always having a certain quantity of soda ash or potash in the mixture of the fluxes used, to bring the silica and alumina chemically combined with the metals into a soluble state. When thoroughly mixed and put by for some days the mass is put in crucibles or furnaces, and white heat applied thereto; it will soon be found in a melted condition, the length of time taken for smelting, and the kind and quantity of the fluxes to be used would be estimated and fixed according to the component parts of the minerals to be smelted. By these means the greater part of the metals in the substances are then chemically separated from the silicious, aluminous, and other earthy and injurious substances.

When the smelting is finished he adds zinc and copper to the melted mass, and stirs it well up with a view of causing a development of electricity, which facilitates a further and complete separation of the metals from the earthy substances. The smelting may be carried on in crucibles or suitable furnaces, the metals are after the smelting separated mechanically from the slag or dross by washing, and then purified in the usual way. If the slag or dross after the metals have been extracted contain any alumina he adds thereto a certain quantity of metallic granulated copper, the quantity being regulated by the amount of alumina ascertained to be in the slag, and again brings it to a melted condition, and well stirs it up from time to time. The copper will then combine with the metal aluminium in the alumina after being in a melted condition for an hour more or less, the mass being stirred up again several times, and thereby he produces aluminium bronze of better quality than any at present in the market, as it takes up all the gold platinum and silver left in the slag or dross by the first process. The metal is then mechanically separated from the dross, and purified in the usual manner.

HOLIDAYS IN HOLLAND.—The second of Mr. Percy Lindley's really marvellous little penny Holiday Handbooks has just been issued (London: 125 Fleet-street), and furnishes all that the tourist will desire to know concerning the interesting trips that can be made at the cost of a few pounds through Holland—taking the tour of the Hague, Leyden, Haarlem, Amsterdam, Utrecht, and the Dead Cities of the Zuyder Zee. The illustrations by Birket Foster and Alfred Bryan, and the chapter on North Holland by Mr. Thomas Parnell, make the books interesting to non-travellers, whilst travellers will learn how to see most at the smallest cost.

The gross traffic receipts of the New York, Pennsylvania, and Ohio Rail and Company for the month of May amount to \$472,774, showing a net surplus of \$80,366.

FOREIGN MINES.

ATAMILLOS.—June 23: The lode in the 20, driving west of San Martin's shaft, yields good stones of ore, valued at ½ ton per fathom. In the 60, driving east of St. Felipe's shaft, the lode has very much improved in the past fortnight, being now valued at 1 ton per fathom. The 40, driving west of St. Felipe's shaft, is in contact with a cross-course. In the 60, driving east of San Enrique's shaft, the lode is very strong and regular, but not producing enough ore to value. The lode in the 130, driving east of Taylor's engine-shaft, is very powerful, but has declined in value to ¾ ton per fathom. In the same level, driving west of Taylor's engine-shaft, a great improvement has taken place, the lode being worth 1½ ton per fathom. The lode in the 80, driving east of San Victor shaft, is large and of a promising appearance, producing 1½ ton per fathom. In the 50, driving east of San Victor shaft, the lode yields occasional stones of ore. The 80 (middle lode) is opening up valuable ore ground, worth 2 tons per fathom. The lode in the 80, driving west of San Victor shaft, is a little larger than it was but of no value. There is no improvement in the 50, driving west of San Victor shaft. The 70, driving in the same direction, continues unproductive. In the 60 cross-cut, south of Judd's engine-shaft, there is no change of importance. In Linare's winze, sinking below the 70, the lode has declined in value to 2 tons per fathom. Mareno's winze, sinking below the 60, is situated east of St. Enrique's shaft. The usual rate of weekly weighing of ore was maintained very regularly throughout the past month, and the stoves are turning out fairly well at present. The ordinary surface work is kept on steadily and the machinery is in good condition. We estimate the raisings for July at 200 tons.

BIATSBURG COPPER.—John Daw, W. Daw, July 4: Murchison: The 25 east lode, 2½ feet wide, is composed of quartz and rich copper ore; worth 12½ per fathom. The 25 west lode, 3½ ft. wide; value 14½ per fathom. There are four stoves working in the back of this level, worth on an average 14½ per fathom. York's: We have four stoves working to the west of this shaft, which will yield 14½ worth of ore per fathom each. In the No. 3 adit the lode is looking very promising, being 2½ ft. wide, worth 14½ per fathom. We have six stoves working in the back of this level, three of them will produce 12½ worth of ore per fathom each, the other three 10½ worth of ore per fathom each. In the No. 2 adit here the lode is improving, being 2 ft. wide, composed of quartz and rich ore; value 7½ per fathom. The winze sinking in the bottom of this level is not looking so well; present value 10½ per fathom. The three stoves working in the bottom will produce full 14½ worth of ore per fathom each. We have one stove working in the back valley 14½ per fathom. The middle adit lode is looking very promising, worth 37 per fathom. Johanne's Lode: We are only working one stove. Every place is full of stuff, and we are not in a position to get it away for a month or two; this stove is worth 12½ per fathom. Our surface work for the turbine and air-compressor is progressing as fast as the nature of the work will admit. Some parts of the machinery are on the mine. We are getting on well with the dressing, and all the machinery is working well. The vessel Mary Owens left Skion 12 days ago for Burry Port with 220 tons of ore. A vessel by name of Via is expected in the course of a fortnight to load 200 tons. Mary Owens is again chartered to load 220 tons in August. The mines are looking very well, and everything is progressing satisfactorily.

BUENA VENTURA.—June 23: The lode in the 22, driving east of Henty's engine-shaft, continues regular, and the ground is getting harder than it was. The 35 cross-cut, south of Henty's engine-shaft, is being driven towards the lode. The lode in the 20, driving east of Henty's engine-shaft, is irregular, and often yields good stones of ore. In the 30, driving in the same direction, the lode is small, and the ground moderately easy for opening up. In Taylor's engine-shaft, sinking below the 30, the men are working well, but owing to the hardness of the rock the progress is slower than we calculated on. The works at surface are kept on very regularly, and the machinery is in good condition. The tributes are not working with so much animation as they have been accustomed to. Many of them find it difficult to get enough ore at the present low price to maintain their families.

CANADIAN COPPER AND SULPHUR.—Francis Bennetts, June 30: At the Hartford Mine, No. 5 shaft, the 70 east still continues to look well, and the stoves in the back and bottom of this level are also looking well, the average size of the vein in these workings is about 5½ ft. wide, of 5 per cent. ore. At No. 3 shaft the vein in the 10 east is about 2 ft. wide, of ore about 5 per cent. The vein in the 10 west is about 20 in. wide, of ore about 5 per cent. The vein in the 10 south is about 20 in. wide, of ore about 5 per cent. The vein in the 10 north is about 20 in. wide, of ore about 5 per cent. We have about 5 ft. wide of vein matter containing branches of ore of varying thicknesses of from 4 in. to 6 in. wide, aggregating about 2½ ft. wide of ore. Other parts of the mine are without important change. At St. Francis Mine we have commenced a 30 ft. level east and west; the leader of rich ore is about 4 in. wide. The smelting works are running satisfactorily.

CHILE GOLD.—Mr. Chester (assay officer), June 3: The mill report for May shows a vast improvement on last month's rock, it having increased nearly one-fifth of an ounce per ton. The gold is of a finer quality, which I believe, is due to the greater purity of the ore, and to the fact that the mill is now running at 25 lbs. sample, containing small percentage of sulphurets, taken from feed-floor indiscriminately, which gave 1 oz. 12 dwts. 6 grs. Our milling shows we obtained 1 oz. 4 dwts., what we lost in the tailings being due to sulphurets; but the rock we are at present crushing is of much finer quality and should give a better return. Our extra ten stamps have made but little increase in the return, as most of the gold caught the first week will be in the dies. As already announced the last remittance was 1852 ozs.

The manager, under the same date, writes:—The shaft of No. 4 at the bottom is showing very well. We are already down some 24 ft. of shaft, making very nearly 50 ft. since last October; the lode here rapidly improves towards the east both in size and richness. Next month the expenses will be, I hope, considerably reduced, as the works for water, &c., are now complete.

COLOMBIAN HYDRAULIC.—E. S. Jones, May 29: Malpas Mine, Run No. 83 at the New Opening: This is progressing favourably, the gravel is easier to break, and presents better appearances. The pipe has been constantly at work without losing any time except to-day, when a few hours will have to be lost repairing tubes that broke during the night, and this will be completed by evening. Upper Mine: Several men have been at work employed in grading for the extension of the sluices, and have completed 70 ft. The sluices will be put down to-morrow, when the grading will be continued until it reaches near the face worked.

COOTACOVIL GOLD.—The manager advises by last mail a very heavy burst of monsoon, which has done some damage to earthworks, but nothing serious; 83 in. of rain fell in 13 days. Labour has been scarce, but the coolies are coming in again now. The proprietor of the estate adjoining the Cootacovil land on the north writes that he has traced the reef enters his property, and adds: "From rough pointing of the map, I believe the reef to be the same as the one in the Cootacovil mine. The stone is identical with that of Cootacovil." The boundary river is about ½ mile north of the present workings.

DEVALA MOYAR GOLD.—Extracted from the mine manager's report, June 16: For the last week we have done very little work, for there has been one continuous downpour of rain, making it impossible for the coolies to work except under cover. The rain has done some slight damage, but a few days will put all that straight again. A set of timber gave way at Strathmore Tunnel but we have put that right again.

DINGLEY DELL SILVER AND GOLD.—The directors notify the receipt of a small portion of alluvial gold picked up by Koorombors near to No. 4 reef, and the gold from the treatment of 1 lb. of quartz from No. 3 reef, on Dingley Dell, by Messrs. Oor and Sons, of Madras, equivalent by assay to about 25 ozs. per ton. Report of Capt. Williams, dated June 16: With regard to the reduction works at Richmond Estate, I hear the prospectus is out, and if I have been rightly informed they will treat pyrites alone, but whether they intend to buy by assay or make a charge for the treatment of each company's ores I cannot say, either one would be a great boon to the pyrites owners, as it would be an expensive affair for them to treat their pyrites separately, and in our case I think should derive considerable benefit. When in Colorado, U.S., we sold our pyrites to the Boston Smelting Company with great advantage, and I believe an equal advantage would be gained here with a similar works; hope to be able to give you more particulars on this point shortly. During the past week we have not done much by way of exploring, or working of the different reefs, owing to the heavy rains, which have fallen incessantly, and most of the coolies with their scanty clothing prefer to remain within their houses; however, we have managed to get enough to carry on our crushing, and have got through nearly 100 tons of quartz, with great difficulty, the stuff being wet and sticky, and pulverisers and sieves to such an extent that at times it brings up the engine. I am afraid it will give us trouble to crush if this weather continues, have now the last shaft in the pulveriser, have also got in the stationary pins; how they will answer I cannot say until we give them a trial. The rain has impeded our progress a little at No. 1 tunnel; the nature of the ground being soft and decomposed a small portion has fallen in, and as soon as the weather becomes a little dry will go through it again. We find here that native labour is very slow in driving levels through hard ground at the deep end, and as we have come to the conclusion to wash off the debris from the reef, and lay it bare from surface, by working in this manner a very considerable saving in timber will be effected. We are still selecting stone from No. 3 for crushing, and it has much the appearance as formerly. We have not been able to do anything at Fletcher's the past week for the heavy rains.

DON PEDRO.—Copy of telegram, dated July 10:—Produce for the month (June), 10000 ozs.

EUREKA (NEVADA) SILVER.—Report for the week ended June 13: Bald Eagle: There is no improvement in the ore body at the end of the south drift from the east cross-cut 150 ft. level. A winze has been sunk 12 ft. during the week in low grade ore and iron, with occasional small branches of good ore; there has been little or no ore extracted this week.—Williamsburg: There is a slight improvement in the ore body below the 2nd level both in quantity and quality, and there has been about 15 tons of ore extracted during the week.

FORTUNA.—July 5: Canada Inco Mine: In the 70, driving west of San Pedro's shaft, there is a regular and productive lode; worth 1 ton per fathom. The lode in the 80, driving west of San Pedro's shaft, is well defined, with good stones of ore. In the 90, driving in the same direction, the lode is very regular, consisting chiefly of quartz and calcareous spar. The lode in the 80, driving east of San Pedro's shaft, is small and of no value and the granite very hard. In the 120, driving east of O'Shea's engine-shaft, the lode is very wide and open, with good lumps of ore, producing ¾ ton per fathom. The lode in the 100, driving east of Lowndes shaft, is promising, and valued at 1 ton per fathom, and being opened up extensively. Martinez winze, sinking below the 90, is holed to the 100; the lode is worth 1 ton per fathom. In Martinez's winze, sinking below the 70, the granite is rather hard, and the lode small at present. In Arari's winze, sinking below the 110, there is a well-formed, compact, and productive lode, worth 1½ ton per fathom.—Los Salidos Mine: The lode in the 175, driving west of Taylor's engine-shaft, is of no value. The 175, driving in the same direction has very much improved during the past week, being valued at 2 tons per fathom. The 160, driving east of Taylor's engine-shaft, is suspended while the men put up a rise in the back for ventilation. In the 145, driving east of Taylor's engine-shaft, the ground is disarranged by the main slide, and the lode is being laid open in the 130, driving east of Taylor's engine-shaft, worth 3 tons of ore per fathom. In the 125, driving east of San Pablo's shaft, the main slide is in the bottom of the end, and disarranges the lode, which is valued at 1½ ton per fathom. Blas winze, sinking below the 35, is deep enough for a 45, the lode being worth ¾ ton per fathom. In Jumbo's winze, sinking below the 120, there is a strong, regular, and well-defined lode, producing 1½ ton per fathom. The lode in Barnum's winze, sinking below the 130, is productive and well formed, being valued at 2 tons per fathom. The weekly returns of ore were kept up very regularly during the past month, and the stoves are yielding moderately at present. The works at surface are

going on very steadily, and the machinery is in good condition. We estimate the raisings for July at 360 tons.

San Anton Mine: The 45, driving east of Henty's engine-shaft, is suspended. In the 55, driving in the same direction, there is a large and open lode with good stones of ore, worth ¾ ton per fathom. The 55, driving west of Henty's engine-shaft, is passing through broken and sterile ground. The lode in the 45, driving west of Henty's engine-shaft, is small and irregular. In the 30, driving in the same direction, there is a very wide lode, consisting chiefly of sulphate of barytes. Jose's winze, sinking below the 45, is temporarily suspended, the 55 not being sufficiently near it.

San Francisco Mine: There is no improvement in the 25 driving east of San Francisco's engine-shaft. There is a good shoot of ore in advance of the 40, driving in the same direction, and we expect an improvement shortly. The lode in the 50, driving east of engine-shaft, is easy for driving, and yields stones of ore worth ¾ ton per fathom. In the same level, driving west of shaft, the lode is very regular, although rather small, producing ¾ ton per fathom. The lode in the 40, west of engine-shaft, continues small and unproductive. Whim shaft, sinking below the 15, will be deep enough for a new level in a few days; the lode is worth ¾ ton per fathom. The works at surface are going on very regularly; these include the erection of a crushing mill, impeller buddie, jig, &c. By means of these we hope to return a good quantity of ore in the present month. We estimate the raising for July at 100 tons.

HOOPER HILL.—Extract from letter from resident engineer, dated June 21, received July 8: Report for week ending June 17: In the Gallimore 130 south-west drift the ground has continued much disturbed during the week, and the vein has been cut off by a slide. In the 130 north-east drift the vein has been small and poor, but is now improving again. I have had a little work done at the 70 north-east drift, at the spot where, as I have informed you, there was a fairly rich place in the side of the drift near the shaft. Only a few feet so far have been driven, and the ground in the end is fairly good; there is no defined vein here, but the dyke is traversed by a number of little strings and bunches of quartz, which seem to carry the gold. Fair progress is being made in the cross-cut from the tunnel under the Hawkins' old workings, and as soon as it has been advanced a little further the main tunnel will be continued.

—Extracts from letter dated June 27, received July 11: The following is a report of the mine for the week ending June 24: In the Gallimore 130 south-west drift, as I informed you in my last, the ground is much disturbed, and the vein has been cut off by a slide. We have driven a few feet further, and will commence to cross-cut to the west, the indication pointing to the continuation being in that direction. In the 130 north-east drift the vein has continued to improve, and now looks well. The cross-cut from the 70 north-east drift, near the shaft, has been continued during the week, and continues in good ground. The cross-cut from the tunnel has been advanced 16 ft., the ground being fairly easy. Work will now be resumed in the tunnel to push it on to the dyke; the ground in the end is soft, and easy for driving.

ISABELLE (GOLD AND SILVER).—The superintendent writes, June 17, as follows:—Everything is running quite smoothly. The mint will send me draft on San Francisco for silver coin. I have written to the bank to know on what terms they receive such drafts. Bar No. 21 assayed 502 fine; bar No. 22, 373; and the mint bar, No. 23, 717 fine. I enquired of Superintendent Crawford if he would take the bullion if it fell a little below 800 fine; he stated that he did not like to do so, but would, and directed me to send it to him, so I think we can in future avoid the San Francisco losses, and get full assays and full prices. The mint part by the "humid" method, usually making bullion 10 higher than by fire assay, as there will be a small loss in cupelling, but in sending to San Francisco assayers we do not get the benefit of this difference. When at the mine the workmen had just broken into the second east and west levels, where the footwall of the shaft and diving of the 120 and 130 levels, there was then room for two men to work at a time, but, as I thought there would be room for four after making two or three more blasts, I assayed a sample made up by breaking a fragment from six pieces I brought down with me, representing the different characters of the ore I found in that opening, and found the samples to contain at the rate of \$196 in silver, \$8 in gold, and about 25 per cent. in copper. I think our battery sample will show quite an improvement next week, although it has not gone below \$50 per ton in silver, besides the gold and copper, since we started upon this run. I gave Mr. Wallace, a civil engineer, from Stockton, a permit to examine the Stella. The foreman (Bari) said he was perfectly satisfied with the assay, and John Ellis, a Cornish miner, who has had charge of the work in the Illinois, California, tunnel applied for a permit to visit the Stella, which I granted.

—June 23: On the 21st sent to Carson Mint bar of bullion, No. 25, 730 silver, 2½ per cent. gold—733 ozs., net value \$625.75. It would do your heart good to see the bullion we are now sending away. We now receive the London value of the silver on the day it is received at the mint, payable in coin draft on San Francisco. Our battery samples have increased in value \$12 per ton over last week, and next week it will show an additional increase, as the pulp is dropped into the bin and is mixed with the week's crushing: 6 tons of ore are being received at the mill of a higher average grade than any former deliveries. The ore is looking splendid. This comes from the footwall line of the second east and west ledge. You remember I said that the old stop was right under the hanging-wall of the first east and west ledge, and if we could get to the footwall we should get richer ore.

—July 10: The following telegram was received from the mine: This morning, viz.,—Five days' run on 16 tons; result, \$800 in gold and silver and 3000 lbs. of copper.

KAPANGA (Gold).—Telegram from the manager at Curomand: Since last message we have crushed 50 tons of quartz. The yield has been 160 ozs. of gold. Prospects good.

KOHINOOR AND DONALDSON SILVER AND GOLD.—The superintendent in report for the week ending June 17 states:—South drift from shaft in 182 ft. yielding ¾ ton to the fathom, looking better. No. 4 drift in 41 ft.; no change from last. No. 2 winze down 43½ ft., yielding 1 ton of ore to the fathom; looking well. No. 2 rise up 32½ ft., yielding ¾ ton to the fathom; looking well, and improved. The 40 tons of concentrating ore treated at Idaho mill yielded: gold, 453 ozs. per ton, value \$90.60; silver, 9.34 ozs. per ton, value \$10.27; total value per ton, \$100.87. In addition to which the tailings yielded—gold, 2.37 ozs. per ton, value \$47.40; silver, 13.98 ozs. to the ton, value \$15.37; total, \$62.77. Free gold was caught on the plates, producing a return of 11 ozs. of gold. The 10 tons of smelting ore sent to the Argo Works yielded—gold, 4.85 ozs. to the ton; silver, 15 ozs.; and copper 2 per cent.

The manager, in report dated June 24, states:—The hoisting machinery is progressing satisfactorily, and expected to be in full operation in about two weeks; will then proceed with sinking of the shaft, and diving of the 120 and 200 levels. We are now down 43½ ft. in the winze, and are in ore all the way. We are sending down the ore from the mine as fast as possible, and the mill is now running steadily. A new tunnel was about being started on the Golden Link, one of the new mines. Work was resumed on the Kohinoor Mine, and further sinking of the main shaft in progress.

LINARES.—June 23: The lode in the 115, driving west of Warner's engine-shaft, is large, with good stones of ore. In the 130, driving in the same direction, the lode is smaller, and has declined in value to 2 tons per fathom. There is no improvement in the 130, west of Warner's engine-shaft. The 115, driving west of Warner's engine-shaft, is opening up valuable ore ground; worth 2 tons per fathom. The lode in the 135, driving west of Pell's engine-shaft, is small and unproductive. The 135, driving east of Pell's engine-shaft, is not opening ore ground of any value. In the 120, driving east of Pell's engine-shaft, there is a regular lode with good stones of ore, producing ¾ ton per fathom. The lode in the 105, driving east of San Francisco shaft, is getting smaller, its value being 1 ton per fathom. In No. 243 winze, sinking below the 115, the lode is still very large, but has diminished in value to 2 tons per fathom. The lode in No. 241 winze, sinking below the 105, is small and irregular, producing 1 ton of ore per fathom. In No. 245 winze, sinking below the 105, the lode has fallen off in value during the past fortnight to 1 ton per fathom. The weekly returns of ore were kept up very regularly during the past month, and the stoves are now steadily, and the machinery is in good condition. We estimate the raisings for July at 300 tons.—Quintientos Mine: In the 100, driving east of Taylor's engine-shaft, the lode contains good stones of ore, but scarcely enough to value. The lode in the 90, driving in the same direction, has further declined in value to ½ ton per fathom. Taylor's engine-shaft, sinking below the 80, is holed to the 100, the lode is worth ¾ ton per fathom. Diego's winze, sinking below the 80, is situated east of Taylor's engine-shaft, and over the 90 the lode is valued at 3 tons per fathom. We estimate the raisings for July at 120 tons.—Mojala Honda Mine: The lode in the 35, driving east of Henriqueta shaft, is large, and inexpensive for opening up. The 70, driving east of Santo Tomas shaft, is being astonished at being presented by him with the richest specimen of gold quartz these fields have ever produced, the gold running right through it and cementing the fragments obtained by cracking it together. However, although it was found by our washer on the site of our new shaft, from its being, with one exception, the only stone with visible gold in it found there, and as it is very small (being only about ½ in. long) I would recommend you to attach no more significance to the matter than the facts of the case really warrant, although I must confess that, speaking for myself, I regard it as most encouraging.

MISSOURI.—Advice received from Missouri this week state that at the Master shaft: The Cornish pump has been started, and arrangements made for sinking in a few days. At Victoria lode a trial shaft at a depth of 25 ft. has been sunk; the lode averaging 3 ft. in width during the week, and is worth ¾ ton of ore to the fathom. The walls continue regular, and the lode improves in strength as we go north.

NEW CALLAO.—Mr. Skerchly, the company's engineer, at present in London, has received the following communication from Senor Carrasquel, the mining captain at the New Callao property, dated Bolivar, June 15:—The lode in the 100, driving east of the main shaft, is well defined, and the lode consists of quartz of the four kinds found in the mines of the district of Ngaruri (Callao), and I have sent to the company's agent three samples containing gold

I have the greatest enthusiasm for the mines of New Callao, and I have the strongest reasons for saying that this lode will be without doubt very rich, as the quartz which we have is exactly the same as in the Horman shaft (Callao). It is equal in every respect. We have also discovered another lode (the 16th), and I have taken out quartz of splendid character close to the surface, and have sent samples to the company's agent.

NUNDYDROOG GOLD.—B. D. Plummer, June 17: Mining operations—Maharajah Reef, Air Shaft: The lode in the north end, at the 62 ft. level, is about 16 in. wide, of the same character and composition as last week. In the south end the vein does not show so well, but we are still desiring it, no lode having yet been taken down. In the south foreland the fissure is wide enough, but is filled with mica, schist, and small pieces of quartz, in the fissure is principally filled with mica, schist, and small pieces of quartz, in the "small" of which we can get small shows of gold by washing in the pan. The quartz does not look so well. I named in a former report that the cross-cut had injuriously affected it in this direction, and if the part we are now driving on does not soon improve I shall cross-cut to the west to see if it has been thrown by the cross-cut. New Shaft, Intermediate Shaft, and No. 5 shaft: At the bottom of each of these shafts cross-cuts are being driven in search of the Maharajah reef; some fathoms have to be driven before I shall be able to report on the reef at these depths.—Eastern Reef: We are making good progress. The lode in the north end, 70 ft. deep, is about 18 in. wide, and is nothing more to report from the west cross-cut, but we are making good progress.

ORGANOS GOLD.—J. G. Green, April 20: As more than a year has elapsed since the formation of this company I have thought that a resume of the work executed to the end of February would be useful as a guide to the directors. We arrived at the mines in the end of June, 1881, but very little work was done for the first few months owing to the difficulty in getting peons, and arranging for supplies of provisions. It must, therefore, be noted that the principal portion of the work described below has been performed in the last four months of the year ending February this year.—Mine Works: During the period above mentioned 103 fms. 4 ft. of levels were driven and secured, at a cost of \$2014 11-10, an average cost of \$1943 10 per fm., including the cost of timber, broken frames, &c. The distance driven in the different levels, together with the amount of quartz and gossan containing gold extracted from each, will be found in the following table:—

Mine.	Name of level.	Distance driven, fms. ft. in.	Quartz, &c., extracted, met. tons.	Estim. yield, ozs. 8.	Estim. p. ton.
Constancia	Esperanza level	36 0 0	57	0.8	456
"	Buena Ventura	27 4 0	29	1 1/2	43 1/2
"	Rogers	20 0 0	30	1 1/2	90
La Encuente	Adit No. 1	13 5 0	30	1 1/2	90
"	Adit No. 2 cross-cut	6 0 0	—	—	—

Total, 103 4 0 fms. 146 met. tons. 589 1/2 ozs. 8. From this level (Rogers) a large quantity of lode has been extracted. It consists nearly of limestone with pyrites, and as no assay of the pyrites has been made, I cannot say whether it will yield gold or no. A small quantity of quartz is also contained in the lode, and in this some specks of gold have been seen.

Esperanza Level was driven the whole of the above distance in soft but very heavy ground, and had to be "spilled" through the entire distance, thus necessitating much timber. It has yielded some very rich quartz and gossan, and a large quantity of stony ground has been opened by the drive. Great care, however, will have to be exercised in carrying out this work later on, as the level was commenced at the mouth of the old level, but as the level had too great a rise the sole had to be cut at a different grade to make it practicable to put in a tramway that would be workable. The rock in said sole was hard, and towards the close of the month (February) necessitated power to work it. The old level had caved in the whole length, so that it had to be reopened and widened. The work has taken a lot of timber, and would have been an exceedingly expensive job had it not been that there is an amount of good timber on the company's lands. The level is now being driven on a good ground on the company's lands, which is altogether more compact and of a harder description than in the level above the Esperanza. Rogers' level for a hard 17 fms. is an oblique cross-cut, in hard but much jointed rock, thus not necessitating much timbering. After the lode was cut and the level turned in the direction of the lode the ground was very hard.—Adit No. 1, La Encuente: This level had a hard rock for the footwall, and the hanging lode and wall did not stand very well, and so it had to be close timbered all the way.—Adit No. 2, La Encuente: The rock in this cross-cut at the commencement was somewhat similar to the cross-cut part of Rogers' level, and necessitated timbering. As the driving proceeded it became harder, and is at present in a promising strata for quartz. There are beds of a dark limestone intermixed with minute particles of quartz. In all the above levels the lode and rock was wheeled out in barrows, but now a tram wagon is running in Rogers' level, as I intend shall be in all later on.

Surface Operations.—Roads: The opening of the various lodes necessary has been a source of great expense owing to their great length and bad condition at the commencement of operations by the present company. The following roads have been opened:—(a) From Alpe to the mine, a distance of about 11 leagues, the whole of this, excepting about 3 leagues on the plain this side of Alpe, has been gone over, and much work done, especially in two points:—1. From a point 3 leagues this side of Alpe to the village of Organos, about 4 1/2 leagues over a mountain known as the "Chefon"; this work was of such a nature as to necessitate powder, owing to the number of enormous boulders present, which had to be broken in order to make a road over which beasts laden with heavy and bulky cargo such as our carts could pass.—2. From the last pass over the River Chiguala to the mine, about 1 league, this was through forest, so that much felling was required.—(b) From La Encuente to the mill, 3/4 mile, (c) from Constancia to the mill about 1/2 mile. Besides the above a road has been partly prepared for a tramway from La Encuente to a point where the mineral will be sent down an incline to the mill. This road passes by the mouth of Rogers' level, which is intended as the principal outlet of the Constancia Mine. Starting from a point near the mill a road has also been made up the valley a length of some hundreds of yards of from 8 to 9 ft. wide; this was made in order to provide for the bringing in of heavy pieces of timber required for the turbine, lammers, and machinery generally.

Buildings. The following buildings have been erected:—Superintendent's house, 47 ft. by 17 ft., containing offices and four rooms, with the necessary furniture, outbuildings for ditto, including cook-house, mule-shed, &c. The Englishmen's quarters, assay offices, and store rooms is a building covering an area of 2040 square ft. The building contains 10 rooms, and the walls and partitions are of the usual wicker-work and mud plaster; the roof is of good oak tiles, the dining and bed-rooms are floored with inch plank, but the floors of the stores and assay offices are of beaten earth. The necessary furniture, such as beds, tables, chairs, has been made also. The underground agent's house is 26 ft. by 14 ft., containing two rooms of similar construction to the others, and roofed with oak tiles.—Le Encuente: Peon's quarters: Three separate buildings, containing altogether 24 rooms, each 14 ft. by 12 ft., of similar character to the underground agent's house. At the river side have been built four temporary huts for the peons working there. These are of the type usual in this country—walls of rough posts, thatched with long grass. Smith's shop, 18 ft. 6 in. by 15 ft. 6 in., of planks, and fitted with hammers, bells, &c. Carpenters' shop, fitted, 18 ft. by 17 ft. 6 in. of plank. The dressing-floor, shed, &c., was also erected, and the principal timbers for one side placed *in situ*. This will be a strong, substantial building when completed, 80 ft. by 37 ft.

Excavations for Foundations, &c.: 514 cubic yards of earth and rock has been excavated in order to prepare for the foundations of the stamps, machinery, and buildings required for same. 155 cubic yards was excavated in preparing the tail race from the turbine to the river, in ground nearly the whole of which consisted of large boulders, which at first were blasted, but latterly a derrick was fixed to lift them out and thus save powder. 63 cubic ft. of this tail race had been walled with rubble work, and the bottom paved and levelled off, making altogether a culvert 4 ft. 6 in. wide by 4 ft. 6 in. high. A water-course 300 ft. long was cut to bring the water from the river to the turbine, and a good portion of it was in hard rock. In this work 124 cubic yards of ground were excavated. In addition to the above work, the timber for the turbine, and part of same for mine shed, was sawn and delivered. This is all of oak. The frame for turbine is a very much heavier piece of work than I at first contemplated when the machine was ordered.—Mules and Oxen: These, which form a large item in the cost, comprise 39 mules and 42 oxen, of which four mules and two oxen have been killed whilst bringing the machinery up. This cost will not be lost, as after the machinery is brought up, those beasts not required for service at the mine can be sold, and no doubt several of the younger mules will fetch more than they cost.—Freight: This is the other large item in our expenditure, being, as will be seen by the statement in a summary form, of the cost for the year, a little over 15 1/2 per cent. of the total cost. For this there was done the following work, not including some unimportant items. The whole of the machinery and goods originally ordered had been brought from England to Honda, and nearly all to Alpe. Of this some 50 cargoes have been delivered at the mine, and the remainder to the village of Organos. In conclusion, I consider that the amount of work done, considering the enormous difficulties we have had to contend with, will compare favourably with anything ever done in the country, and I can only hope that it meets with the full approval of the directors.

ORGANOS.—In a summary of the works executed at this mine to the end of February, the manager states:—The distance driven, 103 fms. 4 ft.; quartz, &c., extracted, 146 tons; estimated total yield, 589 1/2 ozs. of gold, or an average of 4.04 ozs. of gold per ton. It is further reported that the machinery will be ready for crushing in August.

PIERRE PITTE.—July 10: The manager reports as follows: We have cross-cut into the lode in the south mine about 10 ft., and there are no indications yet of our being near the hanging-wall. It is as rich now as ever, and I consider that I am fully justified in estimating it at from 7 to 8 tons of lead and a greater quantity of blende per fathom. This ore is nearly pure, and can be sent to market without being dressed, only hand-picked. An assay of a piece of lead made by our assayer showed that it contained 72 1/2 per cent. of lead and 93 ozs. of silver to the ton. I have had a double tramroad laid in the shaft, so as to bring up the ore when we have made the communication with the level. I am also having the water which yet remains in the bottom of the shaft drawn up by means of a hand pump, so as to be able to sink. There is nothing to say respecting the north mine, there being no change to note.

PITANGUI GOLD.—Cable message from the agents of the company in Rio de Janeiro, dated July 10, advises the amount of produce obtained for the month of June as being 500 oits. of gold. The value of this produce would amount at \$s. 94. per oit. to 2122. 10s. sterling.

RHODES REEF GOLD.—Extracted from the mine manager's report, June 16: For the last week we have done very little work, for we have had one continuous downpour of rain, making it impossible for any of the coolies to work except under cover. The new reef is looking well. I saw splendid free gold in the solid stones, specks nearly as big as peas, and a great quantity of pyrites.

RICHMOND CONSOLIDATED.—Telegram: Week's run (one furnace) \$25,000 from 456 tons of ore; refinery \$25,000.

—S. Longley, June 12: I have to report the following advance and the present condition of the dead work for the week ending June 12.—The 200 west drift from near station has been run 10 ft. in limestone. Resumed the 5th for purpose of exploration. The 400 west drift from south drift to little No. 10 chamber has been run 12 ft. in limestone (Burleigh drill). Resumed 5th for purpose of exploration. The 400 north-west drift from north station has been run 21 ft. in limestone (Burleigh drill). Resumed 5th for the purpose of explo-

ration. The 700 north drift from west drift at quartzite contact (Burleigh drill) has been run 8 ft. in limestone. The 700 west drift from station (Burleigh drill) has been run 8 ft. in limestone. The 800 north-west drift from west drift (Burleigh drill) has been run 15 ft. in limestone. The 800 new north drift from quartzite (Burleigh drill) has been run 19 ft. in limestone. The 900 rise from north-east drift from north drift has been run 22 ft. in limestone and ledge matter, favourable for ore. Commenced on 5th. The 800 winze from south-east drift from north-east drift from north drift has been sunk 11 ft. in limestone. Commenced on 5th.

RIO GRANDE DO SUL GOLD.—Henry Eddy, May 29: Since my report last week there has been no material change in any of the different points throughout the mine. The improvement in the gallery driving east from the shaft is assaying the same as then reported (1 oz. per ton). The weather is still favourable to our progress.

RUBY AND DUNDERBERG CONSOLIDATED.—Report on mines for the week ended June 19: Dunderberg: The No. 3 cross-cut continues in very hard rock, but it is of a favourable character for ore, containing considerable iron; progress this week, 6 ft.; total, 218 ft. from the 700 ft. level. The south drift from No. 8 cross-cut has been advanced 15 ft. during the week without any change; total, 142 ft. from the No. 8 cross-cut. The No. 8 orebody above the 700 ft. level is improving in quality, and is producing nearly all the ore that is being mined at present. At the No. 8 below the 700 we are drifting from the upraise near the end of the drift from the bottom of No. 8 winze; progress this week, 6 ft.; total, 12 ft. from the upraise. The prospects at this point are favourable for ore, but there is very little work being done, on account of the ventilation being poor; we are not extracting any ore below the 700. The north drift from the No. 8 cross-cut has been advanced 20 ft. this week without any change; total, 32 ft. from the No. 8 cross-cut. The ore in the upraise near the end of the north drift from the west cross-cut on the 600 does not look quite so well, but is still producing ore in paying quantities. The north drift from the west cross-cut 300 has been advanced 14 ft. during the week; total, 27 ft. from the cross-cut, no change since last report. The main shaft continues in rather hard ground; progress this week, 11 ft.; total, 21 ft. below the 700. Have shipped 8 tons of ore this week, 32 men at work.—Lord Byron: There is no change to report. The tunnel has been advanced 12 ft. during this week.—Bullwhacker: Work has been suspended here for the present.

—July 11: Copy of Telegram received from Eureka to-day: The ore shipped during the week was 11 tons. The variations of development of late discovery do not look quite so well.

ST. JOHN DEL REY.—Telegram from Morro Velho, dated Rio de Janeiro, July 13: Produce for the month of June 17,500 oits., value 67814; yield, 3.3 oits. per ton.—Culaba: 630 tons stamped; yield, 1.1 oits. per ton.

STANDARD DIAMOND.—P. B. Salomons, Kimberley, June 15: We began well this week with pulling blue with two engines, when, unfortunately, the south-east reef started on Tuesday evening slipping again, it will take us 10 days to clear our claims again, though we shall be able to haul some blue in the meanwhile; the manager is of opinion that this slip will be about the last, for in eight days time he expects to have the new shaft completed, and hopes then to be able to deal effectually with south-east reef. We have 8000 loads of good ground on the floor, but it has come out of the mine so wet that it will be a long time before it is ready for washing. Number of loads of reef hauled, 5821 1/2; value received hauling reef, 1107. 6s.; number of loads of blue hauled, 967; number of loads washed, 1954; diamonds found, picking and washing, 645 carats; total of wages sheet, 13557. 17s. 6d.

TAMBRACHERRY ESTATES AND WYNAD GOLD.—The following report was received by last mail:—Alluvial: I have been sinking shafts to prove the thickness and value of the deposit, but some I was unable to bottom on account of water. As far as I have gone the deposit seems to be from 3 to 6 ft. deep, and lies from 5 to 10 ft. below the surface. For the last fortnight the river has been up level with the top of the flat, and all work has had to be suspended.—Prospecting: This is entirely stopped until the water moderates.—VILKESBERG.—R. K. Roake, W. H. Phillips, July 1: Hadley Engine-Shaft: The ground in the 60 end, south of cross-cut (south of shaft), continues without any alteration to remark since our report of the 5th inst. In the winze sinking below the 140 a decided change for the better has taken place in the character of the lode; it is also improved for copper ore. Looking at its appearance generally, we may confidently expect a still further improvement here. Sinking is being pushed on with speed, and when the winze is communicated with the level below we shall have laid open a fine section of available ore ground. The lode in the end driving south of rise, in back of the 100 north, and in the 100 south of shaft, are worth 102 and 52 per fathom respectively for copper ore. We set the boiler to the drawing engine to work again on Thursday morning, and since then dressing has been pushed forward with energy.

YUBA RIVER GOLD WASHING.—Telegram: Clean-up twenty days; proceeds \$20,000 Prospects are good.

SALES OF COPPER ORES.

COPPER ORES SOLD AT THE CORNWALL TICKETINGS, FOR THE QUARTER ENDING JUNE 30, 1882.

Mines.	Tons.	Amount.
Mellandale	1623	£5311 12 6
South Carleton	1130	4954 18 0
Devon Great Consols	2743	4320 12 0
Wheal Crebor	869	2863 1 0
West Tolgus	320	2316 10 0
Levant	307	2637 15 0
South Devon United	650	1725 19 0
Gunnislake (Clitters)	303	1642 18 0
Marke Valley	530	1391 6 0
Glascow	234	1345 2 0
Bedford United	241	1064 4 0
West Seton	120	561 8 0
West Caradon	98	462 0 0
East Caradon	80	370 10 0
Violet Seton	112	293 9 0
Wheal Jewell	94	281 8 0
Gawton Copper	205	241 5 0
Phenix	38	210 18 0
Holmbush	80	192 0 0
East Ury	50	182 2 0
East Pool	67	171 1 0
Prince of Wales	67	146 2 6
Moant's Bay Consols	25	123 2 6
Mid-Devon	14	111 6 0
Wheal Comfort	34	106 5 0
Devon Friendship	24	76 4 0
West Basset	9	40 14 6

COMPANIES BY WHOM THE ORES WERE PURCHASED.	Tons.	Amount.
Vivian and Sons	2914	£9,970 13 9
P. Grenfell and Sons	1257	3,952 9 8
Nevill, Druce, and Co.	2324	5,071 19 8
Williams, Foster, and Co.	2008	6,377 11 11
Mason and Elkington	710	2,293 3 2
C. Lambert and Co.	871	5,115 4 6
Total	10084	£32,781 2 6

COPPER ORES SOLD AT THE SWANSEA TICKETINGS, FOR THE QUARTER ENDING JUNE 30, 1882.

Mines.	Tons.	Amount.
Berehaven	140	£ 595 0 0
Garonne	336	£2,184 0 0
Arendal	374	1,193 14 0
Caveira	311	1,191 15 6
Vimeberg	21	148 1 0
Total	1042	£4,717 10 6
RECAPITULATION.		
British	140	£ 595 0 0
Foreign	1042	4,717 10 6
Sundries	45	356 1 0
Total	1227	£5,668 11 6

COMPANIES BY WHOM THE ORES WERE PURCHASED.	Tons.	Amount.
P. Grenfell and Sons	41	£ 341 0 0
Vivian and Sons	779	3,759 2 6
Mason and Elkington	50	165 0 0
Landore Copper Company	366	1,399 12 0
Total	1227	£5,668 11 6

ELECTRO DEPOSITION AND ELECTROLYSIS.

At the present moment so much attention is centred on electric illumination that a large proportion of the public appears almost to forget that lighting is but one of the many applications of electricity, and that in other directions success has long since been absolutely achieved. Electro deposition, for example, is of paramount industrial importance, and Division V.—Electro deposition and Electrolysis—of the Abridgments of Specifications relating to Electricity and Magnetism (London: Commissioners of Patents' Sale Department, Currier-street, Chancery-lane) shows how much inventors have done in the present century in this direction. The present series extends from 1805 to 1876, and, therefore, embraces all the great inventions which have now come to be regarded as practical necessities—the Elkington and the Christoffe processes certainly not being the least important, whilst the Ruolz and other processes not so commonly heard of in this country are not less largely used. The electro deposition of silver is that which has, perhaps, been carried on to the largest extent; but the principle has been applied, or sought to be applied to the deposition of most of the commoner metals as well as to the more costly.

Recognising the perfection of the covering that can be obtained by the use of the electro-chemical bath, some inventors have sought to apply the principle on a larger scale, and notably Joseph Maurice, who, on September, 1862, in seeking protection for an invention relating to the construction and preservation of ships and vessels, de-

clared that when the exterior of a ship's hull was to be thus coated it might be placed in a suitable dock or basin containing the metallic solution, when the necessary action or agency might be set up. He thought that when the interior of the hull was to be coated the hull itself might be constituted the bath for the depositing solution. He suggested, moreover, that a series of plates or parts of the vessel might be electro-typed previous to being rivetted together, and that the joints or joinings might afterwards be coated: the inventor did not proceed to a patent. There are many inventions in this class which will be suggestive to miners in connection with the separation of metals contained in ores not capable of treatment by the ordinary processes, for the opinion has frequently been expressed that, assuming an electric current to be obtainable at a moderate cost, many of the mixed ores now absolutely worthless in a commercial sense could be profitably dealt with. Whether this opinion is justified can only be determined by experience, and it is not unreasonable to suppose that those constantly handling the ores in question should be best able to suggest an improved method of separating the contained metals.

The present series contains the outline details of many inventions for treating metallic ores by electric currents, and for facilitating the amalgamation of gold in ores by electric action, and there are inventions for the electro deposition of aluminium, of bronze, of cadmium, of copper, of gold, nickel, platinum, and various other metals, and there are several even for galvanic paint, as well as for the use of electrical agency for the prevention of incrustation on boilers, so that the volume will be interesting to a large class.

HANDY BOOK OF JOINT STOCK COMPANIES.

The excellence of Mr. Anthony Pulbrook's editions of the Companies Acts, 1862-80, has frequently been noticed in the Journal; and the admirable little volume—"The Handy Book of the Law and Practice of Joint Stock Companies, with forms and precedents." By Anthony Pulbrook, solicitor. London: Effingham Wilson, Royal Exchange; Harrison and Sons, Pall Mall—which he has now issued will certainly not lessen his reputation as a lucid expounder of companies law, and of the practice connected with the management and conduct of joint stock enterprise. The fact that the titles of the chapters embrace such as, "What is a Company? How to form a Company; Articles of Association; Proceedings after Registration; Allotment of Shares; Liability of Members; General Meetings; Requirements of the Stock Exchange, and so on, will suffice to indicate that the information given is precisely that which is constantly asked for by those concerned; and each chapter shows that the writer has full knowledge of the several questions he discusses. He truly says that in passing the Companies Act, 1862, the Legislature determined to apply the principle of *caveat emptor* (let the purchaser beware) to the formation and management of companies. The usual result, so far as the public were concerned, followed. It became fashionable to take shares in joint stock companies, and the supply of companies was equal to the demand until the crash of the year 1866. Mr. Pulbrook's experience does but correspond with that of all others who have given any attention to the subject when he says that not 1 per cent. of intending shareholders in a company ever take the trouble to read the Memorandum and Articles of Association, or contracts entered into, although they form the basis on which they contract; the 99 per cent. who do not make any enquiry are afterwards the very first to complain if the company fails.

The chapter on the direction of companies is well worth reading and study. Mr. Pulbrook remarks that, whilst insufficient capital is a fruitful source of the failure of companies, the cause of the non-success of nine-tenths of the companies which fail is simply incompetent and inefficient management. No gentleman would now think of admitting his incompetency to become a director of a public company, no matter what its object may be. If a wholesale linen draper were asked to become an ironmaster or shipowner the chances are that he would reply that he knew nothing of the business; ask him to become a director of a company formed to carry on either of those businesses, and he will consider himself fully competent to accept the post. Military and naval men are the worst offenders; they consider themselves competent to undertake the duties of the direction of any company for any kind of business under the sun. But enough has been said to indicate Mr. Pulbrook's style of treating his subjects, and it need only be said that the book is likely to suit all classes of readers, whether they hold shares or are entrusted with the management of shareholders' property.

TELEPHONIC TRANSMITTING APPARATUS.

In connection with pantophones, an invention characterised by the employment in combination with batteries or voltaic currents of a sound-receiving plate of unpolished wood, which, whilst offering a large surface, is light and swings freely, has been introduced by Mr. Léon de Loch-Labye, of Paris. The wooden plate carries a carbon contact piece which bears against a carbon or metallic stop. The wooden plate is by preference fixed at the ends of spring arms which are allowed very free play, so that the plate can assume very varied positions under the influence of very feeble sounds produced by the human voice, whether such sounds be emitted at some distance or by the ordinary speech under the conditions which are most convenient for a regular telephonic service. One important feature in the invention is that the movable pantophonic plate and the entire arrangement are placed within a case or box closed by means of a cover of woven fabric, felt, or other non-vibrating material, which allows the vibrations of the sound of the voice to pass without altering them.

As to the working of the currents for the calls and for conversations it may be stated that the pressure of the finger on the call button in the first station breaks contact of a spring with its contact piece and establishes contact of the same with another stop or contact piece. The electric current flows in the first station through suitable connections, passes through the line wire to the second station, into whose apparatus it enters by the line wire terminal arriving at the signal switch; the current thence passes into the bobbins of the call bell, whence it flows through the armature and the spring, and is conducted to the return wire and rejoins the negative pole of the battery at the first station. The circuit being closed the bell rings in the second station, which is thus called. As soon as the disengagement of the lever is effected by the current a disc outside the box is uncovered. If the attendant is absent at the moment of the call this signal continuing apprises him on his return that telephonic communication with him is required. The answer is sent like the call, then the correspondents unhook their telephones and place them to their ears and keep them applied during the conversation. They can then speak in a natural tone without fatigue and without necessarily approaching the apparatus.

In most cases it is sufficient to hold one telephone only to the ear, but it must always be the right hand one which must be unhooked to work the switch lever. The switch lever is brought against a terminal within the box at the same time as contact of a small spring with its top or contact piece is established. Every modification of the current effected by the varying resistance in the microphonic contact arrangement causes an instantaneous current in the outer coil of an induction bobbin, which current flows through the line and the telephones of the two stations. This telephonic current follows the line wire, passes through one telephone (the right hand one) and on to the other (the left hand one), one of whose wires is attached to the interior wire of the induction bobbin, the other end of said wire being attached to a terminal (negative pole one). This current thus flows to the receiving station, in which it takes the opposite path, and the circuit is closed by the line wire. At the end of the conversation the telephones are suspended on their hooks, and the signal is raised at each station. All the setting or regulating that is required consists in causing the joint or hinge of the stop or abutting piece of work in such a manner that close contact is produced between the carbon plate and the platinum stud, and in modifying (by means of the inclination of the plate) the more or less heavy pressure on the stop. This setting offers no difficulty, as there is more than a centimetre distance between the extreme positions of the stop, which allows conversation to be carried on under ordinary conditions.

Mining Correspondence.

BRITISH MINES.

BEDFORD UNITED.—H. Trezise, July 11: I beg to hand you my setting report for eight weeks ending Sept. 2.—North Lode: The 115 east is set to drive at 12. per fathom; lode worth 34. The 103 west is set to drive, by two men, at 9. per fathom; lode worth 34. We have 10 tribute pitches working on the north lode at tributes varying from 12s. to 15s. in 12. and we have 22 hands overhauling the old burrows for munda and copper.—McGill's Shaft, Bridge Lode: The 42 west is set to drive, by four men, at 4. per fathom. The same level east is set to drive, by six men, at 4. 10s. per fathom. The 30 west is suspended. The 30 east is communicated with the winze from the 20, which has given us good ventilation, and the men are now engaged in taking down the lode, which is worth 30s. per fathom. The lode in the winze that holed is worth 25s. per fathom. The slope in the back of the 30 is worth 15s. per fathom; stoping at 22. 10s. In the 20 east the men are engaged in stripping down the lode, which is a little disordered for the present. The winze sinking west of shaft is near being holed; lode 3 ft. wide, composed of gossan, peach, and munda, and a good mixture of grey ore. The prospects of the mine are very encouraging, and the work throughout is progressing satisfactorily.

BLUE HILLS.—S. Bennett, R. Harris, July 12: The rising above the 80 towards the 66 is progressing fairly well. The 40 east end is worth 7. per fathom. The 30 east end is worth 6. per fathom, and the Gumpas adit west end is worth 7. per fathom.

BWLCH UNITED.—Wm. Northey, July 12: No alteration of importance in our underground or surface operations since the date of my last report. The stopes continue to look well, and will yield their usual quantity of silver-lead ore. The new lode in the costean pit is of a most encouraging character, but on account of the enormous quantity of water issuing from the lode we shall have to suspend operations and commence to cross-cut to intersect the same at the 50. Judging from the immense size and character of the lode on surface we may fairly expect to meet a new and rich run of lead ore. All the machinery through out the mine is in good order and working well. Drawing and dressing is carried on regularly. I shall forward a full report next week.

CARN CAMBORNE.—R. Southey, W. C. Vivian, July 13: In the 105, east of engine-shaft, cross-cut, driving by six men, the lode, which had been squeezed, is apparently opening again, and yielding copper ore of rich quality. In the same level west, driving by four men, the appearances are similar, but not so good. In the 70, west of engine-shaft, we are driving north to intersect the north lode, where we hope to make a good discovery of copper or tin. In the 40, west of engine-shaft, on the north lode, the appearances are encouraging, the lode being 2 ft. wide, yielding copper, blende, and soft spar; this level is approaching the central cross-course, about which good formations of copper were met with by the former workers. We have commenced draining the sump below the 85, on the south lode, and calculate in about a week to be able to commence operations in the bottom of this part of the mine (the 95), with fair chances of making good discoveries.

CARNARVON COPPER.—W. Darby, J. Roberts, July 11: Monthly Report: In the sump below the 90 we have sunk and stoped during the month a little over 3 fathoms. The copper, which had for some time been pinched up, has considerably improved, and we have every prospect of it opening out quite as valuable as at any previous time. The ore which is very rich continues to improve in the eastern end. In the stopes below the 80 east, between 4 and 5 fms. of the lode, has been taken down, which is worth about 1 ton of rich ore per fathom. In the rise at the back of the 90 we have cut into the lode 1 fathom, and the men are now stripping down the lode, which contains patches of rich ore, and worth about 15 cwt. per fathom. The 70 cross-cut at Garrison's has been driven 1 fm. 2 in. on the hanging side of the lode, and this week the ground is much firmer, and less copper showing on the lode.—Cae-y-groes: At the 46 we have driven 5 ft. on the hanging side of the lode, and the men are cutting into the lode, which contains patches of copper throughout and of a promising character.

CARNARVONSHIRE GREAT CONSOLS.—Telegram from W. H. Borlase, July 14: We have cut a large vein at the cross-cut. Lode 6 ft. wide, producing good lead. Sample box sent you. Shall be able to write more shortly. Lode promising.

CHAIGNANT.—A. Williams, July 12: Lowe's shaft has been let to six men to sink, to be carried 12 ft. long by 6 ft. wide, on the course of the lode, at 19s. per fathom. It is now down 27 ft. 8 in. below the level. The lode is made principally of light-coloured killas, sugar spar, gossan, and lead ore, yielding the latter from 20 to 30 cwt. per fathom for length of shaft. At present bottom the lode is pinched by a hard bar of ground, but as we are advancing from its influence, the lode shows an indication of an early improvement.—Western Engine-shaft: The lode in the 12 west will now produce 2½ tons of lead ore per fathom. The lode in the back of the 12 east will yield 1 ton of lead ore per fathom. The skip in this shaft has been completed from the top of the head gear to the 12,—about 24 fathoms in length, and we are progressing favourably with it. The skipway is now being put in, and as far as the haulage of the ore broken underground to surface, it may be set to work any day. The drawing machine and its appurtenances are all laid on the buildings prepared for it, and to-day we have received all the castings from the foundry. We are now busily engaged in fixing the same in their proper places, and if the weather favours us, all the work will be completed and put to work in about a week or nine days from this date.

CWYSTWISTH.—J. B. Rowell, July 12: Since the date of our last report the 8 has been completed to the low waze, new ladder-solar put in the winze, and a good roadway made to the 15. The men are now stoping the back of the level in a lode 3 ft. wide, yielding 8 cwt. of lead and 1 ton of blende per fathom. The Gill's lower level, the lode is more defined, the lead and blende having become more compact, it has, however, not materially improved in value, but looks more promising and is at present yielding 5 cwt. of lead, and 1 ton of blende per fathom. No favourable change has taken place during the past fortnight in any of our stopes on the new lode. The flat joint in the stopes under the 15, east of Kingside shaft, has been cut through, and I am pleased to say the lode is again looking better, and producing more lead, worth 12 cwt. per fathom. The three tribute pitches are producing about 12 cwt. of lead ore per fathom respectively. At the Big Rock very little has been done, the men having been employed at other work. The new powder magazine is complete, has been inspected and approved. Our supply of water is good, the ponds being full. Samples of 40 tons of blende were sent out yesterday for sale on Aug. 1.

DRESDEN MOUNTAIN.—J. Roberts, W. Sandoe, July 12: The rise in No. 5 is very much of the same character as we have reported it for some weeks past. The part of the lode we are carrying is 12 ft. wide, and for the convenience of cutting a good roadway, a plenty of stuff for the crusher we are carrying it 3 fms. low, to be carried to the whole rise, and produce from 8 to 10 tons of lead to the fathom. The stopes to the south of the rise has a good leader of lead on the footwall about 1 ft. wide, and a good mixture of lead through the lode for the width we are carrying, being about 10 ft. The stopes to the north of the rise are also about 12 ft. wide, with strong patches and ribs of lead through the lode, and much of the same character and value as for some weeks past. North end at the No. 5 is very kindly, and the lode is a mixture of lead in a matrix of quartz and carbonate of lime. We are pushing on the dressing as fast as possible, and shall be ready to sample the stuff for the last in a fortnight. We weighed and sent off the last parcel on Saturday.

DEVON FRIENDSHIP.—F. R. W. Daw, W. Gill, July 13: We are pleased to inform you that the 30 east, end of Bennett's shaft, has greatly improved since we reported to you last; the lode is composed of quartz and capel, and we are breaking some very good stones of arsenical munda; from present indications we believe we shall shortly make an important discovery. The rise in the back of this level no lode has been taken down since we reported to you last, as we find we can make greater progress by rising by the side of the lode. In the 20 east, west of Bennett's shaft, an change of importance has taken place; the lode is 3 ft. wide, and producing 4 tons of arsenical munda per fathom. The new stop in the back of this level has improved, and is worth for copper and munda 15s. per fathom. The lode in the 12 east, west of Bennett's shaft, is 5½ ft. wide, and producing 7 tons of arsenical munda per fathom, with some good stones of copper ore. The lode in the adit end, east of Bennett's shaft, is 4½ ft. wide, and worth 9. per fathom for arsenical munda. All other points in the mine are without change of importance.—Surface Operations: The buildings for the new engine we hope to be finished by the end of this month. All other surface work progressing satisfactorily.

DEVON GREAT CONSOLS.—I. Richards, July 13: Monthly Report: Wheel Josiah: During the past month the 144, east of the Count House shaft, has been driven 1 fm. 2 ft. the lode proving of good size, from 4 to 5 ft. wide, and yielding some arsenical and copper ores of good quality.—Wheal Emma, Inclined Shaft: The 137 east, east of Friend's cross-cut, has been driven 4 fms. 0 ft. 4 in., the lode proving 4 ft. wide, of a very promising character, being composed of capel, quartz, peach, and some good quality copper and arsenical ores.—New Shaft, New South Lode: A winze (Bray's) has been sunk in the bottom of the 190 east 1 fm. 5 in., the lode proving 4 ft. wide, and worth 2 tons of copper ore and 2 tons of munda per fathom. The 115 east has been driven 4 fms. 10 in., the lode proving from 3 to 4 ft. wide, composed of capel, quartz, peach, and good stones of copper and munda ores.—Railway Shaft: At the 190 west the south part of the lode has been cut through, proving 5½ ft. wide, and of a very promising character, being composed of capel, quartz, peach, and some copper ore, and some arsenical munda of very good quality, and promises improvement. The 160 west, on the south part of the lode, has been driven 4 fms. 3 ft. 4 in., the lode proving from 2½ to 3 ft. wide, yielding small quantities of copper and munda ores. In the 60, west of Watson's shaft, the lode is 2½ ft. wide, composed of capel, quartz, peach, and some good quality copper and munda ores. In the 50, west of Watson's, on the Capel Tor lode, the lode is 2 ft. wide, yielding some good quality arsenical munda and a little copper ore. The boiler for raising steam for the air-compressor has been got into position, and the other necessary portions of machinery in connection with the rock-drills are being made ready as fast as possible.

EAST BLUE HILLS.—S. Bennett, R. Harris, July 12: The lode in the 50 east end is now 1 ft. wide and carrying a leader of tin worth about 7. per fathom. In the 40 east end the lode is also improving, and is now 2 ft. wide, worth 7. to 8. per fathom. We sell on Friday about 2½ tons of tin. **EAST CHIVERTON.**—Richard Southey, July 13: Since my last men in the 100, west of the engine-shaft, have completed the drive of the 20; set at 3. 15s. per fathom. This has been reset to six men, at 4. per fathom for the month. Judging from the present appearance of the lode I think the end is

getting near the silver-lead gone down in the bottom of the 90. The lode in the eastern end at the 100 is much the same as when last reported on, and set to work to four men at 3. 10s. per fathom for the month; lode large and kindly. Good progress is being made by the masons in building the new winch house. Last Saturday we sampled 50 tons lead; sale takes place on the 15th inst.

EAST LONG RAKE.—H. H. Vercoe, July 13: The sump sinking in sole of the 50 west continues of the same value as last reported, producing 1½ ton of lead per fathom, and leaving a lode of equal value in each end of the sump. The slope in roof of the 50 west has slightly improved, and I hope will continue to do so, as it had fallen off in value very much lately. In the 50 east cross-cut there is no change; the ground is hard, and progress consequently slow. The men working on shallow flat are engaged this week in dressing their leadstuff, which is yielding quite up to expectation. We have sold our parcel of ore at the Holywell Ticking this day, for 9s. 5d. per ton, to Messrs. Walker, Parker and Co., and A. Eytton.

EAST ROMAN GRAVELS.—Arthur Waters, July 13: Setting Report: Six men to rise and stop in the back of the 109 fathom level, south of shaft, at a point 5 fms. behind the end, at 5. per fathom; lode 3 ft. wide, worth 15 cwt. of lead ore, and 20 cwt. of blende per fathom. Four men to drive the 97, south of old winze, at 11. per fathom; lode 3 ft. wide, worth 15 cwt. of lead ore per fathom. We expect an early improvement here. The rise and stop in the back of this level south, by four men, at 5. 10s. per fathom; lode about 2 ft. wide, and worth 20 cwt. of lead ore per fathom. Stopes in the bottom of the 85, north of new winze, by six men, with rock drill, at 4. 10s. per fathom; the lode is 4 ft. wide, worth 30 cwt. lead ore per fathom. The stopes south of old winze, by six men, at 5. per fathom; lode worth 20 cwt. lead ore per fathom; the stopes in the bottom of the 85, south of old winze, by six men, at 6. per fathom; lode 3 ft. wide, worth 30 cwt. lead ore per fathom. No. 2 stopes, south of said winze, by two men, at 4. 10s. per fathom; lode 2 ft. wide, worth 20 cwt. of lead ore per fathom.

EAST WHEEL LOVELL.—R. Quentrell and Son, July 12: Setting Report: Engine Lode: The 46 to drive east of engine-shaft, by six men, at 13. per fm.; the lode is worth 15s. per fathom. The 46 to drive west of engine-shaft, by six men, at 14. per fathom; lode worth 12s. per fathom. The stopes in the back of the 22 west, by four men, at 5. 10s. per fathom; lode worth 7. per fathom; the 12 to drive west of old engine-shaft, by four men, at 6. per fathom; the lode is 2 ft. wide, producing tinstuff of fair quality, and is of a favourable character.—Kogers's Lode: We have fixed lift at the 54, and have set the middle shaft to sink 10 fms. below, by six men, at 18. per fathom. The 54 to drive east, by six men, at 5. 10s. per fathom; the lode is yielding stamping work, and looking promising to improve.

FRONGOOH.—J. Kitto and Son, July 8: During the past month the section of ground above the 56 fm. level, referred to in our last report, has improved in value, and at present will yield 1 ton of lead and 2 tons of blende ore per fathom. As far as yet proved this is a very valuable course of ore, and it is evidently extending both in length and depth beyond our present operations, which we shall be able to follow more advantageously hereafter than at present. The two productive points recently discovered at the 24 east are still opening out profitable ground, one yielding 20 cwt. of lead ore, and the other 20 cwt. of lead and 25 cwt. of blende ore per fathom. Our other underground operations, which are situated in different places throughout the mine, are going on as for some time past, and are producing about their usual quantities of lead and blende ore. Since our last report we have sold 300 tons of blende, and shall sell during the current month 150 tons of blende and 50 tons of lead ore.

GAWTON.—G. Rowe, G. Rowe, June, July 8: The south part of the lode discovered in the 117 east is worth 10 tons of arsenical munda mixed with copper ore per fathom. The lode in the stopes in the back of the 117 is worth 10 tons of munda per fathom. The lode in the 105 east will yield 6 tons of munda per fathom. The lode in the stopes in the back of this level, 105, is worth 9 tons of munda per fathom. The stopes in the back of the 70 is yielding 11 tons of munda per fathom. During the past week we have shipped 49 tons of arsenic soot, and weighed off 107 tons 16 cwt. 2 qrs. of burnt copper ore.

GODDARD'S LEAD.—R. H. Vivian, July 13: We have taken down the lode in the 105, and the lode is looking very well, showing great strength and regularity, producing about the same quantity of lead and blende as last week. We are laying open a good piece of ground for stoping, and have a good piece of lead and blende of good quality ready for the crusher. No mine can be seen with better prospects at such a shallow depth.

GOGINAN.—J. Kitto and Son, July 10: We are still opening on the lode at the 20 in order to test the piece of ground between Francis's and the Weston's shafts, to which we have referred in previous reports, and are pleased to state the result is very encouraging, in fact, quite up to our expectations. The lode shows a large, promising character, and where further proved it yields from 12 cwt. to 18 cwt. of silver-lead ore per fathom. This is about 20 fathoms east of the western shaft. In addition to this there are several other places a little further east where we have broken parts of the lode standing by the side of the level, which yields good orestuff for the dressing-floors, and shows exceedingly good indications of being more productive when opened at a greater depth. The western shaft is sunk 14 fms. below the 27, and left above the bottom. We have commenced driving a new 40 fm. level, which we intend, by the assistance of the boring machine, to push on to the bottom of the shaft, in an easterly direction towards the productive ground before referred to, which we expect to reach within three months from this date. Good progress is being made in sinking Francis's shaft, which is now 5 fathoms below the 60, and no time will be lost in getting it down sufficiently deep to cross-cut the lode at the proposed 72 fm. level, and judging from the congenial stratum of rock in the bottom of the shaft, and the productive character of the lode in the 60, we have every reason to expect the results will be satisfactory. In the 60, driving west of Francis's shaft, the character of the lode has improved during the past month; at present it contains a little silver-lead ore, and looks promising for further improvement.

GOODEVERE.—R. Knott, July 12: Higher Shaft: Since my report of last week we have started the bottom end east by four men, at 8s. per fathom. The stopes both east and west of shaft, continue much the same as last reported on. At the lower shaft we continue to make good progress in sinking, being now 3 fms. below the adit.

GREAT HOLWAY.—W. J. Harris, July 13: Roskill's Shaft: In the 110 west the lode is 4 ft. wide, the same composition as for some time past; fair progress is now being made, and according to the old workings in the level above we can see the lode in the bottom of the shaft. The lode is 1½ ft. wide, worth 15 cwt. of lead ore per fathom, with every encouragement for an early improvement. The pitch in the back of this level is producing 10 cwt. of lead ore per fathom, with good indications.—Level Engine-Shaft: In the 80 east the ground appears undergoing a favourable change, is easier for progress, and good stones of blende and lead are occasionally met with; water issues very freely from the forebreast, effectually draining the level above. The lode in the winze sinking below the 60 contains blende with a slight mixture of lead ore; the ground favourable for progress. The stopes in the bottom are producing 1½ ton of lead ore per fathom. The lode in the back of the level is 1½ ft. wide, worth 10 cwt. of lead and 2 tons of blende per fathom. No. 2 is worth 10 cwt. of lead and 2 tons of blende per fathom. No. 3 pitch is worth 2½ tons of lead and 1 ton of blende per fathom. No. 5 pitch is producing 3 tons of lead ore and 1 ton of blende per fathom.—Brammock Shaft: No. 1 pitch in back of the 60 east is worth 8 cwt. of lead and 2 tons of blende per fathom. The same may be said of No. 2 pitch. The pitch west is worth 5 cwt. of lead and 1½ ton of blende per fathom.

GREEN HURTH.—James Polglase, July 6: Swan shaft is worth 5 tons of lead ore per fathom. The bottom level north (No. 1) is worth 3 tons per fm. No. 3 stopes, in back of the 30, is being filled with stuff by cross-cutting. No. 4 and 5 stopes are just in a poor part of ground which occurs occasionally, but will improve as we go on. The lode in the 20 north is producing good stones of ore; in fact, the rise is in a bed of gossan. The level approaching No. 4 vein is only making slow progress, owing to the level being choked with stuff.—P.S. Dressing, &c., going on as usual.

GROGWINION.—J. Kitto and Son, July 8: At the 12 fm. level, west of the new shaft, we have commenced driving a cross-cut from No. 3 to No. 4 lode, which we expect to intersect within two months from the present, and seeing this lode has yielded large quantities of lead ore in several places throughout the mine, and the deepest point hitherto wrought, there is every probability of finding it remuneratively productive when intersected and opened on at the 12. Our other underground operations are being carried on as for some time past, and on the whole are yielding quite as much ore as we anticipated. On the 20th ult. we sold to Messrs. Nevill, Druce, and Co., 50 tons of lead ore at 9s. 1s. per ton, and shall sell another 50 tons during the current month.

GWYDYR AMALGAMATED.—J. Roberts, W. Sandoe, July 12: For the time being we have suspended the 44 end, and put the men to stop in the bottom of the 20 fm. level in the 117 ft. The lode here is small, but there is a very nice leader of lead in both ends of the sump, and there is also a nice leader of lead in the rise over this level. The 25 end is now getting close to the rise, and has now a well defined leader of lead on one side of the lode. We are pushing on the dressing as fast as we can, and shall get a sampling as early as possible. We are dressing up the blende that we have raised, and shall send out samples of it next week.

CWM DWYFOR (Brynarian Mine).—J. Davies, July 13: Penn-arn: The water in the old shaft is now down 5½ fms. below the 15 fm. level, and the roof of the 20 fm. level is 11 ft. high. The lode in the 20 fm. level is 2½ ft. wide, and there must be big stopes of ore or the water would sink faster. The wheel and all the machinery is working well. As soon as I am able to get into the 20 fm. level I will send you a full report.

HERODSFOOT.—P. Temby, J. A. Temby, July 13: The lode in the 215 south is 3 ft. wide, and worth ¾ ton of silver-lead ore per fathom. The winze sinking below the 205, and about 20 fathoms before the end, is also worth ¾ ton per fathom; the end appears to be cutting down the water, and we hope soon to be able to sink dry. No. 2 stopes in the back of the 215 south has improved to 1 ton per fathom. Nos. 1 and 2 stopes have a little fallen off, now worth 12 cwt. per fathom each. All other points of operation in the mine are as last reported, except this morning in taking down the lode in the engine-shaft some good stones of ore were broken; the lode is getting larger and improving during the past five or six weeks. We have been hindered a great deal in sinking owing to so much surface water, and rain still continues to fall every day.

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week 3 ft. 2 in., and east of the shaft 42 fms. 5 ft. 5 in. The lode here is of much the same character, containing quartz, capel, arsenical munda, and some copper ore. The deep adit east of the south cross-cut, and east of the engine-shaft 54 fms. 5 in., has been extended during the past week 3 ft. 6 in. The lode here is without any material change. The deep adit cross-cut, driving by four men, has been extended during the past week 2 ft. 6 in., and south of No. 2 lode, 22 fms. 5 in. The ground is at present hard, and slow for progress.

KIRK MICHAEL.—R. Rowe, July 12: In the 20 cross-cut we have not intersected any lode. Last week I put some of the men to open out a line of costean pits in the side of the mountain, south of the present workings altogether, and we have come upon a large and promising lode; I have no doubt it is the main lode of the mine, and of considerably increased strength to what we have hitherto had. I shall be able to say more about it in a few days.

KIT HILL GREAT CONSOLS.—Isaac Richards, July 13: At the Tunnel level 3 fms. have been driven during the past week, making the total distance 75 fms., the ground continuing favourable for progress. In the north engine-shaft the lode is 2½ ft. wide, composed of capel, quartz, with munda and small quantities of copper and tin ores. At the 64 east the lode is 2 ft. wide, capel, quartz, munda, and a little tin ore. In the 62 west the lode is 3 ft. wide, of a promising character, and yielding some copper, tin, and munda ores. In the rise in the back of the 62 west the lode is 4 ft. wide, composed of capel, peach, munda, and some saving work for tin ore. In the 48 west the lode is 4 ft. wide, composed of quartz, capel, gossan, and a little tin ore. In the 48 east the lode is 5 ft. wide, yielding some saving work for tin ore. In the winze sinking below the 50 west the lode is 4 ft. wide, capel, quartz, munda, with a little tin ore. At the surface the erections in connection with the rock drill machinery are being got on with as fast as the nature of the work will allow, and every exertion is being used to get the same to work as quickly as possible.

LANGFORD.—R. Goldsworthy, July 13: The masons are making fair progress with building the side flues around the boilers, &c. In the shaft a cistern-plat has been cut at the adit level, bearers put down, cistern put into its place, and first piece of main rod heaved up. The shaftmen are now engaged cutting ground for top door of plunger connection; this completed, we shall lose no time in sending down castings for the house water-lift.

LLANDEGLA.—H. Hotchkiss, July 12: New Shaft: The men have been fixing timber here this week, so that nothing has been done in the way of sinking since my last advice, therefore the ground and lode is without change. Sinking will be resumed to-morrow with vigour. In the 36 yard level, west of shaft, the lode upon the footwall continues to be of the same favourable description as when reported on last. There is a little water coming out of the forebreast, which is also a favourable sign.

MELNAR.—John Gilbert, July 12: There is no change to notice in the character of the ground in the 30 cross-cut south of Gundry's shaft, but the men are making good progress in driving. We have communicated the rise in the back of the 50 with the 40 fm. level; this has laid open a good piece of stoping ground, and will also enable us to fill some of our stopes for convenience in working with attle from the levels above. The ground in the 70 cross-cut, driving north of the main lode, is strongly mineralised with veins of munda and blende, and is looking very congenial for copper ore. In the 90, driving west of Gundry's shaft, on the south part, the lode is 6 ft. wide, and still yielding 3 tons of ore per fathom. The winze in the bottom of this level is yielding 1 ton of ore per fathom. In the 140, west of shaft, the lode is 6 ft. wide, and yielding 2 tons of ore per fathom, but it is getting rather disordered with patches of killas. The winze in the bottom of the 100, east of shaft, is yielding 1½ ton of ore per fathom. The lode in the 110, west of shaft, is 3½ ft. wide, and yielding 1 ton of ore per fathom. In the 110, east of shaft, the lode is 5 ft. wide, and yielding 1½ ton of ore per fathom; although the lode has declined a little in value I think it will improve again very soon. The lode in the 120, east of shaft, is 4 ft. wide and yielding 3 tons of ore per fathom, which is very much better than it was over the place in the level above. In the 90, driving east of the engine-shaft, the lode is 3 ft. wide, composed of arsenical munda and blende—a kindly looking lode. The lode in the 110, east of the old engine-shaft, is 2½ ft. wide, but disordered with killas and yielding nothing to value. The lode in the 110, west of shaft, is 2 ft. wide, yielding occasional stones of copper ore, and the ground is improved for driving. There is no change to notice in any other part of the mine. We shall sample on Tuesday next about 500 tons of copper ore.

MOSA CONSOLS.—T. Mitchell, July 12: I am pleased to say that the engine and all its connections are working well, and the water is in fork. The men will now commence clearing up the level, which has been left in the mine. The drawing at present will be done with the horse-wheel, until the winding drum is attached to the engine. We are looking out for a second-hand winding drum, and will get it fixed as soon as possible. The lode at the trial shaft has been showing a little more sulphur lately.

MORFA DU.—T. Mitchell, July 12: The lode in the stopes in the 60 is looking much as usual; the men engaged here have been hindered several days lately on

shaft, is set to six men, at 4s. per fathom; lode looking well, producing 14 tons of arsenical ore per fathom. No. 2 stope is set to six men, at 4s. 5a. per fathom; lode of a good appearance, yielding 12 tons of arsenical ore per fathom. No. 3 stope is set to six men, at 4s. 10a. per fathom; lode producing 10 tons of arsenical ore per fathom. Owing to the slip in the old engine-shaft, referred to in our last report, we have not been able to draw from the 80 during the week.—Eastern part: The new shaft has been somewhat delayed, in consequence of our being obliged to employ the shaftmen to repair the old engine-shaft. The stope in the back of the 80 is set to four men, at 4s. 4a. per fathom; lode producing 8 tons of arsenical ore per fathom, and good work for tin. The stope in the bottom of the 65, east of Honey's winze, is still looking exceedingly well, and is producing 22 tons of arsenical ore per fathom.

OLD GUNSLAKE.—R. C. Seccombe, July 12: The ground in the adit level is very favourable for driving, and good progress is being made. The lode continues to be very promising, being composed of quartz, fluor-spar, munda, and rich quality grey and yellow copper ore, producing for the latter good saving work.

OLD SHEPHERDS.—R. Nancarrow, J. Nancarrow, July 11: South Mine: The shaftmen are still engaged cutting ground for the new plunger-lift in the engine-shaft, and considering the nature of the rock (which has all to be blasted) fair progress is being made. We have also fixed a small portable engine for winding the shaft until the new winding-engine is erected. The engine and pit-winding the shaft working order, keeping the water at this depth at about five strokes per minute, and as soon as the new plunger-lift is fixed we shall be in a position to drop the lift to drain the mine at a deeper level quickly. This work being of great importance, not a moment will be lost in carrying it into effect. The engineers are busily engaged erecting steam capstan, which we hope will be ready to send down our heavy pitwork by the time it will be required. Teague's shaft is cleared and secured about 10 fms. from surface, which is still full of stuff. The masons are at present engaged building clothing around cylinder. Green's dressing machinery is in fairly working order and works day and night.—North Mine: In driving the adit level the lode has improved, being 3 1/2 ft. wide, composed of munda, floukan, and lead ore, and looks promising for further improvement.—Western Ground: We find the ground in the new engine-shaft much harder than we had anticipated, also a large quantity of water which is now down about 5 fms. from surface. We have been cleaning out foundation for engine-house and loading, also preparing quarry for raising stone as near to the works as possible.

PANDORA.—H. Nottingham, July 12: I have nothing new to report in the bargain working over 45 south. Both places look well, and we had them opened up with the 33 ft. winze. We have been obliged to abandon the sinking, as it could make no progress to speak of. I have put the set of men that were sinking to cut away the roof under the winze, so that we have now a double set of men working in the roof at the 45. Having so many hands at this place, and breaking but very little stuff, we have run short of stuff for the dressing floors; but we are doing our utmost to push on under these difficulties. Our supply of pumping water is beginning to fail us, so that I fear we shall be obliged to put on the engine next week.

PARKS COPEL CORPORATION.—T. Mitchell, July 12: The 90 west, on No. 5, continues to show small strings of copper ore and sulphur, and sometimes in the joints we meet with small pockets of rich ore; the ground is of a promising character. The 90 east, on No. 2, is producing occasional stones of copper ore, and showing more sulphur these last few days; the ground here has the same appearance as the ground in which large deposits of ore were formerly found. The rise in back of the 90 continues to yield about 3 tons of copper ore per fathom. All other points continue to look much the same as for some time past.

PARKA MINES CONSOLS.—Wm. Hooper, T. Job, July 10: During the past fortnight our end has been continued on Neil's lode by six men, and we are pleased to say the lode is greatly improved since our last, and at present worth 10s. per fathom; the cost for driving same is 2s. 10s. We have let a stope at the 20 to a party of men on tribute at 1s. 10s. and 5s. standard, and shall be prepared to let another stope within a fortnight; if the lode continues as good as it is at present we shall be able to let it at a much lower tribute. At the 10 Nos. 3, 4, and 5 tributaries stopes are much the same as last reported. We should strongly advise the intervention of Tumblyn's great lode, and are fully persuaded it is the main feature of this mine.

PATERSYKE AND CLARGILL HEAD.—J. Peart, July 7: Top Level: The south end continues the same as last reported, plenty of vein and a little ore. I think we will have a change for the better at this point very soon. The north end is looking well; there is a good vein, and some splendid pieces of ore coming out varying from 3 to 10 stones weight, and yesterday there was a rib of solid ore laying against the west cheek 2 in. wide, in addition to the above pieces, and looks like improving.—Low Level: We have opened out and put in good order 178 fms. of this level, and are now up to an old tunnel. The level is very much broken down by water, and in fact it is close, but I think that we will pass through the difficult ground, and expect to have 40 or 50 fms. of good sound level near the forehead that will require very little to put it right—only to lay the new rails.

PENHALLS.—S. Bennetts, J. Goyno, July 12: The 70 east end is without much alteration, the lode being small and unproductive. The 60, west on the south lode, is small and unproductive, and the 60, west on the north lode, is producing some little stuff, but not of any value, the lode being 2 ft. wide. The winze below the 53 is worth 20s. per fathom, and the 40, west on the north lode, is unaltered, and the winze below the 30, ahead of that end, 3s. per fathom.

PIONEER.—July 12: Holywell; Beattie's Shaft: We are working here with tributaries only, who are doing fairly, but they have been delayed a little since yesterday owing to a fall which has now been cleared and repaired. All the tributaries will re-start work to-morrow.—Engine Shaft: The 85 yard level east has very much improved since Mr. Haymen, the secretary, and myself, were down last afternoon. While working in the forebrest we picked into a rib of solid ore from 6 ft. to 8 in. in width, which has every appearance of widening out. I continue to hold out well, and promises to turn out very good lode. It is very satisfactory to see the 85 east showing out as well as soon after we last started to open out the ground. The 85 south is changeable, but the lead is going down well in the sole of the level, and it would be advisable to sink a pump on the ore to thoroughly prove the ground. In the forebrest we had a lump of ore to-day, fully 2 cwt., and very nice ground before us, which may lead to our suddenly opening out on to large bodies of ore. Nevertheless, if the lead holds out in the 85 east, it would be best to follow on in the course of the lode, and on the 85 south, till we intersect the junction of another east and west lode, which is not far off.—Dressing Floors: The dressing of ore for the next sale is progressing as usual.

POLROSE.—W. Bennetts, July 12: The shaftmen having finished their contract to sink the shaft 5 fms. below the 100, last Saturday I reset the same to complete the 110 by 12 men at 17s. per fathom. In the last few feet sinking the ground has become more settled, and the lode is not underlying quite so much; these are certainly favourable indications, and I am hoping that we are on the way of a change for the better. The lode is 3 ft. wide, and is highly charged with munda and copper ore. The winze below the 100 east is reset to four men, at 7s. per fathom. The lode is fully 2 ft. wide, producing saving work for tin.

PRINCE OF WALES.—S. Roberts, G. Rowe, July 12: Setting Report: The 102 east, to six men, at 10s. per fathom; lode 3 ft. wide, producing good stamping work for tin. This end is getting near the cross-course, east of which will be under the run of ore ground in the levels above. The 102 west to six men, at 10s. per fathom; lode at present small, but of a kindly nature, composed of tin, capel, spar, munda, and copper ore. The 90 east to six men, at 7s. per fathom; lode 2 ft. wide, composed principally of capel, producing tin and copper. The 90 east to two men, at 10s. per fathom; lode 3 ft. wide, worth 10s. per fathom for tin, with rich stones of copper. Stope in back of the 90 east to two men, at 6s. per fathom; lode 5 ft. wide, worth 10s. per fathom for tin and copper ore. No. 1 stope, in back of 90 east, to two men, at 6s. per fathom; lode 4 ft. wide, worth 8s. per fathom for tin. No. 2 stope to two men, at 3s. per fathom, worth 6s. No. 3 stope to two men, at 5s. per fathom, worth 6s. No. 4 level to four men at 10s. per fathom. One in back of 90 west to four men, at 10s. per fathom and 13s. 4d. for copper. One in back of 90 west to four men, at 10s. per fathom and 13s. 4d. for copper. Stope in back of the 23 fm. level, and one in the tin lode, to two men, at 5s. per fathom, lode worth 8s. per fathom.

PRINCE OF WALES.—S. Roberts, July 13: I am pleased to inform you that we have an improvement in the bottom end east. In blasting down the lode, which is 3 1/2 ft. wide, producing good tinstuff to-day, we discovered in the extreme end, 1 ft. wide of it rich copper ore, and appears as if it will further improve.

ROMAN GRAVELS.—A. Waters and Son, July 13: The lode in the 125, north of new engine, shows a lode 5 to 6 ft. wide, producing some very good stones of lead ore, and improving as the end advances. The lode south of shaft is without any material change since last week. The 110, south of this shaft, shows a lode 3 ft. wide, and worth quite 2 tons of lead ore per fathom. The same level produced old engine-shaft also shows a lode 3 ft. wide, worth about 1 1/2 tons of lead ore per fathom. The 95, south of new shaft, is in a lode 2 1/2 to 3 ft. wide, in down about 9 fms. from surface. The winze in this level, north of the new shaft, against this winze, shows a lode worth 2 tons per fathom. The rise from the 110 worth about 5 tons per fathom. The 85 south is without a change worthy of remark since last week. The stope throughout the mine are yielding the usual quantity of lead ore. We sample lead ore and blende next week.

RUSSELL UNITED.—J. Bray, July 13: The lode in the 97 is 3 ft. wide, yielding small portions of copper and munda; this level is driven by six men, at 7s. 10s. per fathom. The ground in the cross-cut north, towards the great north lode, is per fathom. The lode in the last few days; driven by six men, at 10s. 10s. per fathom. The lode in the 55 is 3 ft. wide, composed of quartz, 7s. 10s. per fathom. We are getting on with but not to value; driven by four men, at 5s. per fathom, and hope to get it sure by the time referred to in my last report. The cross-cut north has been driven in the last two months by the 97 has been driven east 5 fms. 1 ft. The 55 driven east 4 fms. 4 ft. The 55 driven east 2 fms. 6 in.

SILVER HILL.—Richard, July 13: The ground in the tunnel cross-cut, last week's report, crossing at a strong mineral leaders of munda and rich quality copper ore. If we find the lode when we have passed through, the ground as rich in proportion as some of the leaders we have passed through, the good as I could wish, but I expect to have the large rock drill to work again in a day or two, when we shall be able to go ahead with much better speed. We have not met with anything of importance in cross-cutting south in Wheal ton of the lode that the level has been extended on, which is from 2 to 3 ft. solid stones of sulphurous munda, some of which contain 12 ozs. of silver to the ton of stuff.

SOUTH DODGE COPPER.—W. Skewis, N. Williams, July 13: The stope in back of the 30 is rich for tin, worth from 12s. to 15s. per fathom. Some very fine rocks of tin have been broken and sent to surface during the past week since, and both ends look very promising for an improvement in value. Satisfactory progress has been made this week in clearing the deep adit level, which, up to the present point, is all well timbered and secured. The wheel-pit will be completed in a few days, when we shall commence to erect the wheel-wheel.

SOUTH DUNBROW.—Wm. Rich, W. Williams, H. King, July 12: The 93 east is being driven in the granite by the side of the lode, which will be cut

into occasionally to prove its size and value; when last cut into it was unproductive. The stope in the back of the 80 east is worth 12s. per fathom; we have held the rise in the back of this level to the winze below the 70, this has given good ventilation. We have resumed driving the 70 east; the lode in this end is worth 10s. per fathom. We are rising in the back of the 70, on the north part of the lode, which yields saving work for copper. The rise in the back of the 70 west, towards Marshall's shaft, is very wet; the lode has a kindly appearance, and is worth 10s. per fathom. The 60 east, of Plantation shaft, is worth 8s. per fathom. The lode in the winze below the 60, east of King's is worth 15s. per fathom. The 50 east end is worth 10s. per fathom. The lode in the back of this level is worth 10s. per fathom. The 40 east end is worth 8s. per fathom. The 30 east end is worth 10s. per fathom. The stope in the back of this level is worth 15s. per fathom. We are sinking a winze below the 60 at Marshall's with the view to communicate with the rise as quickly as possible. The lode in the 60, east of Marshall's, is disordered by the cross-course. The 50 end west is unproductive at present. The 40 west is worth 12s. per fathom.

SOUTH DARREN.—H. James, July 13: There is nothing new in the 130. The 120 east continues to improve a little as we advance. The lode in the 120 west holds on good, and is worth 3 tons of silver-lead ore per fathom. In the 110 east the lode is not so rich for lead, but it continues about the same in size, and at present is worth 1 ton of silver-lead ore per fathom. The stope and tribute pitches remain much the same in value as for some time past. The 45 tons of silver-lead ore sold on July 7 realised 416s. 17s. 6d. Next week we shall sample 100 tons of copper ore.

SOUTH TOLARNE.—T. Angove, S. Arthur, July 12: The lode in the bottom of the engine-shaft is about 5 ft. wide, and worth 15s. per fathom. The lode in the 60 end west is clear of elvan; present size about 4 ft. wide, and worth 10s. per fathom. The lode in the 60 end east is about 5 ft. wide, and worth about 6s. per fathom. The lode in the 50 end east is at present small, and worth 3s. per fathom. The 50 end west, lode 4 ft. wide, worth 5s. per fathom. We shall set two new ends at the 70 on Saturday next. The surface operations are progressing favourably.

SOUTH WHEAL CREBOR.—J. Goldsworthy, July 13: The lode in the 46 is showing a favourable appearance so far as cut into to-day, 2 ft. The men will continue to open in the same until the south wall is reached. Some rich ore, with munda, prlan, and quartz, is intermixed in the lode. I look forward to an early improvement. There is no change in the rise on the main lode. Good progress is being made.

TANKERVILLE GREAT CONSOLS.—Arthur Waters and Son, July 13: Tankerville Mine: We have commenced to cross-cut south to intersect Tankerville main lode at the 232, and the men are nearly through No. 1 north lode, which is about 8 ft. wide, composed of carbonate of lime and lead ore, worth quite 1 ton of the latter per fathom. The two tribute pitches in back of the 220, one east and the other west of Watson's shaft, are together worth 2 1/2 tons per fm. The new winze in 220 west, by four men, at 5s. per fathom and 6s. per ton, is in a lode worth 15 cwt. per fathom. The winze in the 256 west is worth about 12 cwt. per fathom. A pitch in the 256 west, on main lode, is worth 15 cwt. per fathom. A pitch in the 192 west, on the north lode, is worth 20 cwt. per fathom. A pitch in the back of the 182 west, on main lode, is worth 10 cwt. per fathom. A pitch in the 140 west, on main lode, is worth 20 cwt. per fm. A pitch in the 74 west, on south lode, and a pitch in bottom of same level, are together worth 3 1/2 tons per fathom. A pitch in the back of the 62 east, on south lode, is worth 15 cwt. per fathom. A pitch in the 35 east, on main lode, is worth 10 cwt. per fathom.—Pennerley Mine: The lode in the 120 west, on Warm Water, is 3 ft. wide, and about 3/4 ton of lead ore per fathom. The 80 west, on this lode, is being driven by four men, with machine drill, at 7s. per fathom, and is worth 15 cwt. per fathom. The stope in the back of this level is worth 27 tons of lead ore per fathom. The lode in the 80 east, on Big Ore, is at present in two or three divisions, producing stones of ore, but not to value. The cross-cut going north towards Ben Arthur's lode, at the 20, east of Bland's shaft, is, we believe, getting very near the lode. A tribute pitch in the 120 east, on Big Ore lode, is worth 15 cwt. per fathom. Two pitches in the 80 east, on said lode, are together worth 15 cwt. per fathom. A pitch in the 60 east, on same lode, is worth 6 cwt. per fathom. Three pitches in the 40, west of Gin shaft, on same lode, are together worth 2 tons per fathom.—Potter's Pit Mine: Six men to stope and sink in No. 2 winze, in the 105 west, at 2s. 15s. per fathom, and worth 15 cwt. of lead ore per fathom. Also six men to stope and sink in No. 2 winze, at 2s. 15s. per fathom; worth quite 20 cwt. lead ore per fathom. Some grand, solid lumps of galena have been sent up from here this week, and we may say that the lode looks better, if anything, than it has done since we commenced to work here. The tribute pitch at the 55 west, on Wilson's string, is worth quite 17 cwt. lead ore per fathom.

Bog Mine. The water is 5 fms. 4 ft. below the 143, and the engine and pitwork are doing good duty. The 143 has now been cleared and secured about 56 fms. west of engine-shaft, and has laid open some very good tribute ground. The 143 is being driven by four men, at 12s. per fathom, and is now worth 5 cwt. of lead ore per fathom, and improving. The pitch in the 143 west, on middle lode, is worth 15 cwt. of lead ore per fathom and stones of blende. The pitch in the 143 west is worth 15 cwt. of lead ore per fathom. The two pitches in back of the 130, west of engine-shaft, are together worth 4 tons of blende per fathom. The pitch in this level, east of shaft, is worth 30 cwt. of blende per fathom. The pitch in the 115, west of shaft, is worth about 6 cwt. of lead ore and 2 tons of blende per fathom. Three pitches in back of this level west together worth 15 cwt. of lead ore and 3 tons of blende per fathom. The pitch in back of ditto east is worth 15 cwt. of lead ore per fathom. The pitch in the 100, east of engine-shaft, is worth 3 1/2 tons of lead ore per fathom. Two pitches in the 115, east of Bunting's shaft, together worth 10 cwt. of lead ore and 4 tons of blende per fm. The pitch in bottom of this level is worth 25 cwt. of blende per fathom. Two pitches in back of 80 together worth 3 tons of blende per fathom. The pitch in back of the 70 is worth 25 cwt. of blende per fathom. The winze in the 60, east of Bunting's shaft, on south lode, by two men, at 5s. 10s. per ton of lead ore and 2s. 10s. per fathom; worth 20 cwt. of lead ore per fathom. A pitch in back of said level is worth 30 cwt. of blende per fathom. The pitch in back of the 50 east is worth 30 cwt. of blende per fathom. The pitch in the 10, on north lode, is worth 20 cwt. of lead ore per fathom.

TREGEBOURNE.—E. Chegwain, July 11: The ground in the engine-shaft is much the same for sinking as last reported. Saturday next being our setting day I shall be able to give the exact depth of the shaft in my next report. In the adit driving east of Pinnick's shaft, on Tregebourne lode, the lode is about 4 ft. wide, and worth 30s. per fathom for tin ore; judging from present appearances is likely to improve as we advance. The new south lode is still about 1 ft. wide, and producing very rich grey copper ore, worth about 8s. per fathom. All surface work is being pushed forward as usual.

TREVAUNANCE UNITED.—W. Vivian, July 13: The 55 driving east; lode 2 ft. wide, producing a little tin, saving work for the stamps. We have two tribute pitches working, by six men, at 13s. 4d. in the 17. Cross-cut driving south of middle shaft; no change to notice since last report.

VAN CONSOLS AND GLYN.—James Roach, David Douglas, July 13: The lode in the 70, west of Murray's shaft, is now producing spots of lead, but not enough to value, and very good progress is being made in driving. The 50, west of Gundry's shaft, is unchanged, and the ground more easy for driving. We are looking out for an early improvement here, as we expect soon to come up with the run of productive ground next in the levels above. The lode in the 50 cross-cut driving south is getting more mineralised, and presenting a very promising appearance. Level driving east of rise above the 50 on the south part of lode is producing about 18 cwt. of lead per fathom. The rise to communicate the No. 1 stope with No. 2 is completed. We have resumed the drive of the cross-cut south of No. 2 stope, which yields 10 cwt. of lead ore per fathom. The level driving east of No. 1 stope is not so rich as when last reported. The 100, west of Murray's shaft, producing 1 ton of lead ore per fathom, and Nos. 1 and 2 stopes yield 13 cwt. and 12 cwt. of lead per cubic fathom respectively. We have this day forwarded 25 tons of lead ore to the purchasers.

H. B. Vercoe, July 13: Having inspected the Van Consols Mines yesterday I beg to furnish you with the following report:—In the 73, driving west of Murray's shaft, on the north part of the lode, there is no material change since my former visit; the portion of the lode being carried in the level is of a soft decomposed nature, and is mixed with lead throughout; however, in a lode of such immense width as this it is not at all unlikely that a richer portion of the lode may be on the side of the drive, and this will be proved by driving another cross-cut south, after a few fathoms have been driven longitudinally in lode. In the intermediate level, driving east of rise above the 50, on south part of lode, I am pleased to say a very great improvement has taken place, fully bearing out my predictions as to this section of the mine being likely to produce large quantities of lead. During the last few days this point has produced rich leadstuff, and there is at present in the forebrest of the level, and particularly the south side, a good lode of ore, worth quite 1 ton of lead per cubic fathom. The 50, in the level, is now being made from this level to communicate with No. 1 stope for improving ventilation and for better mode of working, this can be done in three weeks, after which time a much greater quantity of orestuff and better quality can be relied on from these workings. No. 1 stope in level of 40, west of Murray's shaft, produces at the rate of 1 ton per cubic fm.—i.e., in rising and also in stripping west side of stope. The 40 driving east of No. 1 stope, on south part of lode, has recently opened out a rich section of ground for stamping, leaving a lode in roof of sole of level worth 15 cwt. of lead per fathom, this level is unchanged, and with Murray's shaft, and the continued productiveness of the lode in the direction mentioned are overestimated, as it may open out a new mine on the south side of all the old workings, and seeing that the prospects are so good I would advise the 50 being driven east on south wall, on the forebrest of which end there is now a most promising lode, and indicates a schute of ore near at hand. The No. 2 stope in roof of 50 west produces 12 cwt. of lead per fathom, with a large quantity of ground in reserve of equal value. In the 50, driving west of Gundry's shaft on north part of lode, the only noticeable change is the ground has become softer, and which will enable us to force on the most important point at a greater speed. I do not see any reason to alter the opinion expressed on various occasions, that in this level you have a grand trial, and one that will ultimately pay you well for the expenditure made thereon. The 50 cross-cut south, east of Gundry's shaft, is a very promising lode, mixed throughout with lead and occasionally good lumps of pure galena. This cross-cut shall be extended until the south wall is reached, and should it prove productive (of which there are good indications) it will be of immense value to the future of the mine on the western end. On the whole, I am much pleased with the appearance the mine presents, particularly in the 40 and 50, and I quite believe there are hundreds of tons of ore (if not thousands) in the ground now in reserve near Murray's shaft above the 40 and 50.

WEST CARADON.—N. Richards, July 12: Two stopes in back of the 50, on Vivian's north lode, will yield in the aggregate 1 1/2 tons of copper ore per fathom. A stope in back of the 38, on this lode, west of cross-cut, will yield 1 ton of copper ore per fathom. A rise in back of this will yield about 2 1/2 tons of ore per fm. Gilpin's lode, in the adit level, west of main cross-course, is yielding saving work for copper. A stope in back of this level will yield 1 ton of ore per fm. This lode in the 38, west of main cross-course, has an improved appearance, and seems to be getting into a more congenial channel of ground for the production of copper ore. The rise in back of this level, on Taylor's lode, will yield 1 ton of copper ore per fm. We have water at the new shaft sinking below the surface, in Western Gonaema, which somewhat retards our progress; but should dry weather set in I do not think we shall have much difficulty with the same.

WEST CREBOR.—J. Andrews, July 12: On Saturday last the engine-shaft was set to sink below the 50, by nine men, at 15s. per fathom. The lode in the shaft is 5 ft. wide, composed of quartz, capel, munda, and yields good stones of yellow copper ore; a very healthy lode. The 50 end east was set to drive by two men, at 6s. per fathom. The lode in the end is 3 ft. wide, and yields good stones of munda and copper ore. The 50 west was set to drive, by

two men, at 7s. per fathom. The lode in the end is 4 ft. wide, composed of quartz, capel, munda, and good quality copper ore, worth 15s. per fathom, with indications of further improvement.

WEST DEVON GREAT CONSOLS.—G. Rowe, July 12: The lode in the engine-shaft sinking below the 30 is improving in character, with very strong munda, and good stones of yellow copper ore, showing indications of being near a rich course of mineral similar to what we have seen in the adjoining mines to the east and other places in this locality.

WEST GODOLPHIN.—T. Hodge, F. Hodge, July 12: We have nothing new to report this week worthy of any note. The 50 west end is worth 8s. per fathom. The stope in the back of said level is worth 15s. per fathom. All other bargains continue to hold out good promise for early improvements. Surface work is being pushed on with all dispatch.

WEST KITTY.—W. Vivian, July 13: In the 80, driving east, the lode is worth 25s. per fathom. In the 72, driving east, the lode is worth 8s. per fathom. In the stope in the back the lode is worth 35s. per fathom. In the rise in the back of the 60 the lode is worth 20s. per fathom. We shall put the new steam stamps to work next week. We sold a parcel of tin yesterday at 62s. 10s. per ton.

WEST LISBURN.—Wm. Northey, July 12: I am pleased to say that the work is pushed forward with full vigour, and we shall soon be waiting for the iron to complete the rods.

WEST WHEAL TOLGUS.—J. Gilbert, July 13: The lode in the 105, west of Richards' shaft, is 5 ft. wide, and yielding fully 4 tons of copper ore per fathom. The stope in back of this level have improved a little since last report. There is no change in any other part of the mine. Our sampling on Tuesday next will be about 160 tons of good quality copper ore.

WHEAL COATES.—Wm. Vivian, July 13: The 80 driving east, on the south part of the lode, is worth 7s. per fathom. The 70 driving east; lode worth 9s. per fathom. The 70 driving west; lode large, producing saving work for the stamps. The 60 driving west; lode worth 7s. per fathom. The 50 driving east; lode producing a little tin, but not to value. The 20 driving east; lode worth 7s. per fm. Cross-cut driving south of engine-shaft; no change to notice since last report.

WHEAL GEORGE.—C. Kneebone, July 13: We have not yet turned our drive on the east and west lode reported on last week, as it is important to get on with the permanent level. We are daily getting good lead ore. The footwall of the Roman lode and the graphite maintains its width of 2 1/2 ft. to 3 ft. I expect on turning westward on the new discovery to open a rich section of lead ground, but we shall not be ready to drive on it for a fortnight.

WHEAL GRENVILLE.—T. Hodge, July 12: We have fixed the standing lift at the 190, which works satisfactorily. The sumpmen are now engaged fixing ladders, and doing other jobs in the shaft. Sinking will be resumed in a day or two. The lode in the 190 east end produces stamping work. The 178 east end is worth 12s. per fathom. The stope behind said end are in a wide lode, worth 12s. per cubic fathom. The 150 east end is worth 14s. per fathom. The 140 east end is worth 10s. per fathom. The 165 west end is poor. The 120, west of the western shaft, is worth 12s. per fathom; we intend to start a rise in the back of the 130. When high enough we intend to drive back towards the 120 to effect a communication; this done it will lay open a very fair piece of tribute ground. No other change worthy of note.

WHEAL UNY.—Wm. Hamby, Wm. Prophet, James White, July 13: Saturday last being setting and pay, the following bargains were let for four weeks:—Hind's engine-shaft is now down 3 ft. below the 152. The shaftmen have taken a contract to complete the trip-plat, put in plat-solar and penthouse, and fix the skip-road for 40s. The 132 to drive west of shaft, by six men, at 6s. per fathom; lode worth 8s. per fathom. The 132 to drive east, by six men, at 5s. 15s. per fathom; at this point we are passing through the cross-course; the lode produces a little tin, but judging from the character of the ground and the appearance of the lode in the end leads us to believe that a further improvement will soon be met with. The 172 to drive east at 3s. 15s. per fathom; lode 5 ft. wide, and worth 12s. per fathom. A stope in the back of this level, set to four men, at 2s. 6d. per ton of stuff; worth for tin 12s. per fathom. The 172 to drive west of incline shaft, by four men, at 7s. 10s. per fathom; lode full size of the end, and worth 13s. per fathom. No. 1 stope, 1, the back of the above level, is set to four men, at 3s. 6d. per ton of stuff, and worth 16s. per fathom. No. 2 stope at 2s. 6d. per ton, and worth 13s. per fathom. No. 3 stope, set to six men, at 3s. per ton, and worth, for 9 ft. wide, 2s. per fathom.—Old Sump Shaft: We hope to communicate with Hind's engine-shaft this week.—King's Shaft: The stope and tribute pitches east and west of this shaft, are producing their usual quantity of stuff, and the men are getting fair wages. Our surface operations are progressing very satisfactorily, and all the machinery on the mine is in fairly good condition and working well.

YSTWITHE.—J. Kitto and Son, July 6: The western adit cross-cut south is being continued by a full set of men, assisted by the rock drill, and is progressing rapidly towards the south lodes referred to in our previous reports. At present it is passing through a compact stratum of clay-slate, which is in every respect similar to that which accompanies the productive lodes in this district, and seeing this point is proving and opening a very promising piece of mining ground, more than 100 fms. below the surface, it must certainly be regarded as a very important trial, and one, which in our judgment, will most probably result in laying open a profitable and permanent mine.

HERODSFOOT SILVER-LEAD MINE—LATEST SPECIAL REPORT.

The following is a special report made on behalf of a shareholder showing the improved state of the prospects of the mine:—

Herodsfoot Mine, July 5.—We beg to hand you the following report, showing the principal points of operation as well as the present state and prospects of the mine:—The 215 fm. level has been driven south on the lode about 65 fms., 50 fms. of which is in ore-ground, and the lode in the end is worth from 15 to 20 cwt. of silver-lead ore per fathom. We have four new stopes in the back of this level set to 13 miners at an average of 35s. per fathom, and the lode will produce from 14 to 18 cwt. of silver-lead ore per fathom. We have full 50 fathoms more to drive to reach the cross-course, and we have every reason to believe, from the appearance of the lode in the 206, this will prove a more productive piece of ground than what we have driven through at the 215. The engine-shaft is now sinking below the 215, and we hope soon to reach the 225, where we shall commence driving. The lode in the shaft is large and masterly, producing a large amount of lead, but not to value. If lode over the 205, north of the slide, for 80 fms. in length has been taken away, and from which I find the company had nearly 80,000 lbs. in dividends. The bottom of the mine has improved, and the oreground has lengthened north a great deal, and we think in 10 fms. more sinking the ore will reach the engine-shaft. We find the levels above the 205 are driven south to the cross-course, which is within a few fathoms of the then boundary of the sett. We have cleared the 117 south 65 fms., and are daily expecting to reach the end, when driving will be at once commenced in the ore ground, south of the slide; in this direction the lode is in which the lode is situated is of most favourable character for the production of silver-lead ore, and we have every reason to believe that the lode will be found equally rich south of the cross-course as on the north, from which the 80,000 lbs. profit was made. This point of operation is watched closely, and should we meet with a stope of lead ore, the shares would go very high in this neighbourhood.

NORTH PART OF THE MINE.—We cleared the 160 north 120 fms., and have driven the end about 30 fms. on the lode, and we find it from 3 to 6 ft. wide, and worth from 10 to 15 cwt. of silver-lead ore per fathom. In this direction we have hundreds of fathoms of profitable ground laid open. We have two stopes in the back of the 160 lot to eight men at 2s. 5a. per fathom, and worth full 15 cwt. of silver-lead ore per fathom each. We have put up a rise, which is within 8 fms. of the 127; this rise has also proved a high piece of ore ground, standing over 160. The fact of the mine being so rich at the 127 and a long run of ore, which continued without interruption from the 80 to the 215 and still going deeper in the south part, we look upon this to be almost certain that the north part will prove quite as productive in depth. In this part we have 65 fms. of oreground, and for a great length standing whole before us. Our monthly sales of ore will increase, and at much less cost we are now selling 90 tons of ore every eight weeks. We have greatly improved our machinery, and have now a good plant, consisting of a 60-in. pumping-engine, with 2, 10, 11 and 12-ton boilers, a 24-in. winding-engine, with iron cage, air-compressor, and circular saw mills complete. We have also improved our dressing-floors by adding two sets of the most improved jiggers, a new 24-in. crusher, and 16 heads of stamps. We have four large water-wheels all put in good repair. We consider the dressing cost will be reduced nearly one-half per ton of ore. We have thousands of tons of halvans at surface which has been on the mine for many years for want of machinery to dress it. We believe the mine will continue to improve as we lay open our bottom levels, and should any discovery be made in the 117 south a new mine would be at once opened up.—P. TEMBY, J. A. TEMBY.

SILVER VALLEY MINING COMPANY.—It will be recollected that two shareholders, Messrs. Scott and Jones, instituted criminal proceedings against Ledru Rollin Reynolds in respect of his frauds in connection with the affairs of this company. The trial took place at the Old Bailey, on August 27, 1881, the result being that Mr. Reynolds was sentenced to two years' imprisonment. On that occasion it was stated by counsel, both for the prosecution and for the defence that Mr. Reynolds had made "restitution" to the shareholders of the company, not to the full extent, but to some extent, and this circumstance, it was hoped, would be taken into consideration in mitigation of his sentence. It appeared that in fact a sum of 1000l. was paid by Mr. Reynolds' friends through the solicitor for the defence to Mr. Beall, the solicitor for the prosecution, and that a further sum of 1500l. found on the person of Mr. Reynolds when he was taken into custody, was afterwards handed to Mr. Beall. It was not disputed that the sum of 11500l. thus

Court of Justice that the defendants Beall, Scott, and Jones, or such of them as had received the same, should pay the 1150*l.* into court, but in the course of the argument it was in effect conceded that the application ought to be limited to the balance. Messrs. Scott and Jones offered no opposition to the application as so limited, but Mr. Beall objected to pay any sum into court. Mr. Justice Kay, after considering the evidence, said that, in his opinion, the money was paid by way of restitution to the shareholders generally, and he directed that Mr. Beall should within a fortnight pay into court the sum of 480*l.*, being the balance of the 1150*l.*, after deducting 600*l.* as the estimated cost of prosecution and 70*l.* in respect of the pecuniary loss of Messrs. Scott and Jones.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, JULY 14, 1882.			
IRON.	£ s. d.	£ s. d.	
Pig, G.M.P., Clyde...	2 10 0	2 11 0	
Scott, all No. 1...	2 9 11	2 11 0	
Bars, Welsh, f.o.b. Wales	7 6 0	5 10 0	
" " in London	6 0 0	5 10 0	
" Stafford...	7 2 6	7 5 0	
" in Tyne or Tees	6 2 6	6 5 0	
" Swedish, London...	0 0 0	0 0 0	
Rails, Welsh, at works	5 7 6	5 10 0	
Sheets, Staff., in London	8 10 0	8 10 0	
Plates, ship, in London	8 10 0	8 10 0	
Hoops, Staff., in London	7 5 0	7 10 0	
Nail rods, Staff., in Lon.	6 15 0	6 15 0	
STEEL.			
English, spring	12 0 0	12 0 0	
" cast	10 0 0	10 0 0	
Swedish, keg	15 0 0	15 0 0	
" lag, ham.	15 10 0	15 10 0	
Rails, at works	5 10 0	5 12 6	
" Light, at works	6 10 0	7 0 0	
LEAD.			
English, pig, common	14 5 0	14 10 0	
" " L.B.	14 12 6	14 17 6	
" " W.B.	15 0 0	15 2 6	
" sheet and bar	15 2 6	15 2 6	
" pipe	15 12 6	15 12 6	
" red	16 10 0	16 10 0	
" white	19 10 0	21 10 0	
" patent shot	17 5 0	17 5 0	
Spanish	13 17 6	14 0 0	
NICKEL.			
Metal, per cwt.	15 0 0	16 0 0	
Ore, 10 per cent. per ton	20 0 0	25 0 0	
SPELTER.			
Best	16 12 6	16 17 6	
Swansea	17 10 0	17 10 0	
" fine	20 15 0	20 15 0	

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REMARKS.—A somewhat better tone appears to have sprung up in our market, and although business is, for the most part, decidedly not active, yet there seems to be a little more enquiry, and a greater disposition exists to enter into contracts than what there was a week or two back. Naturally political affairs have had some influence upon our markets, but prices have not to any extent been regulated by them, and whilst there has been some slight fluctuations in those metals where speculation prevails, yet in others steadiness is the principal characteristic feature. The course of the market this week can hardly be taken as an indication of what it is likely to be in the immediate future, for Egyptian affairs have created so much uncertainty that, perhaps, it is not altogether reasonable to consider the movements that have been made as wholly arising from ordinary occurrences, but, at the same time, notwithstanding these difficulties, there has been a fairly confident tone prevailing, and at times, in anticipation of a good autumn trade, purchases have been made before any particular advance has taken place. There is some considerable uncertainty attending the future of our markets, for in addition to the political complications to which we have already made reference there is also great doubt as to what sort of harvest will be reaped in this country, the continued wet weather destroying those sanguine expectations which promised well to be realised at the early part of the year. But then, on the other hand, trade for a long time past has been particularly dull, so that owing to the scarcity of orders which has of late been noticeable in our markets, it would certainly give the idea that business on this account alone must sooner or later be stimulated. Again, there is that great impetus of cheap money which must tend to encourage enterprise and help to restore the markets to their normal condition; and, further than this, we have still, for the most part, a range of prices both low and tempting, and which cannot in

any way tend to check the demand, but, on the contrary, must probably be the means of enlarging the amount of business to be transacted.

Now, in setting these matters, both for and against the markets, side by side it certainly does seem as though there is more chance of business improving than of its going back, or even remaining stationary, consequently it is not surprising that there has been a slightly more tone visible, in spite of the existence of some few adverse features. There may be no general rush or sudden recovery in the markets from their state of lethargy, as it invariably requires time to restore the markets to a state of activity from one of quietude, but the stronger feeling which is becoming visible shows that the future is viewed with confidence, and that higher prices are anticipated. Slightly more enquiry seems to exist for shipment to India, and the somewhat limited quantities recently exported to that country certainly promises well for an increased demand; while according to advices from America there seems a good chance of bountiful crops being reaped there, which would necessarily make a very great impression upon the state of trade throughout the whole world. In confirmation of this we need only quote as a precedent the autumn of 1879, when owing to the excellent crops then realised trade made vast strides, and greatly enhanced rates were obtained, and while at present there is not sufficient to be able to state whether there will be a repetition of such marked activity, yet with such cases as these before us, and with such good promise of bountiful American crops, there certainly is a good chance of business characterising the future shipping trade to America.

COPPER.—There is not a very great amount of business doing in this metal, but the market appears to be stiffening, although no material alteration has been made in quotations. This arises chiefly from an improved enquiry from India for manufactured, while somewhat better prices have been realised. The immediate future of this market may not be unlikely in great measure to be influenced by the ensuing harvest from Chili, and partly in the hope or even anticipation of their being light the market has been firm. Holders have been able to sustain the market tolerably well against the heavy charters recently advised, but whether they will be equally successful in maintaining their quotations should there be a repetition of large charters time alone can disclose; and while the uncertainty exists as to what quantities are likely to be forthcoming, operators for the most part take the sanguine view, and think that, as heavy quantities have of late of this higher prices are looked for. However, one thing seems certain, that should the charters for the first half of the present month be for limited quantities, then, with the improved demand from India, although that at present is but slight, yet there can be little doubt that prices will advance. A steady rise therefore does not seem at all improbable from the amount of business which may be done to meet the ordinary requirements of the trade; while if the speculators again give this market their attention, the movements may be sharper than what is now generally expected.

IRON.—This market remains particularly steady as regards prices, and a fairly moderate business is being transacted. The manufactured trade has scarcely undergone any alteration whatever, the demand, although not brisk, is nevertheless said to be regular, and quotations are maintained, except, perhaps, by some few manufacturers who may possibly not be quite so well off for orders as their neighbours, and have in consequence been more disposed to make some slight concession. With regard to pigs, changes have been more frequent, although even here the alterations have not been very great, but which may easily be accounted for, as two contrary influences are at work, the one to give support and the other to damp the tone of the market. The affairs in Egypt have rather tended to check speculative buying; but, on the other hand, reduced public stocks, both in Glasgow and Middlesbrough, causes firmness to the market. This reduction in which has been made in stock is, as we have on previous occasions shown, a feature which will doubtless prove of great benefit to the trade at large, for it shows that the demand is at last becoming in excess of the supply, and as by the present arrangement the curtailed production will continue certainly to the end of September, there may be some opportunity for the heavy stocks now in existence to work off, and more particularly if the demand should further increase. The shipments last week were not so good as those for the corresponding period of last year, but yet it is well to notice that the total for the whole year still compares very favourably with those for any of the few previous years, except 1880, and it is, perhaps, better to take the totals to test what has been doing rather than select any particular weeks to make comparisons.

The tone on the Glasgow warrant market on Monday was steady, and only a limited business was doing, transactions being recorded betwixt 49s. 6d. and 49s. 4½d., while on Tuesday a fair number of contracts were made, chiefly between 49s. 3½d. and 49s. 1½d., but the price improved towards the close to 49s. 4½d., at which there were buyers, while on Wednesday the market was very strong, and the price at the close advanced to 49s. 11½d. Yesterday the price again further advanced to 50s. 2d., which must be reckoned the closing quotation for the week, as the warrant market will be closed until Tuesday next for the Glasgow fairs. The shipments last week were 10,474 tons, against 13,825 tons for the corresponding week of last year, or a decrease of 3351 tons, and which makes the total shipments for the whole of this year 325,400 tons, against 290,109 tons for the same time of last year, and 394,439 tons for the similar period of 1880. The number of furnaces in blast remain at 103 while the stock in public stores shows a further decrease of 855 tons, amounting to 685,487 tons, against 636,342 tons a week ago.

The imports of Middlesbrough pig-iron into Grangemouth last week were 4965 tons, against 7215 tons for the same week of last year, being a decrease of 2250 tons, and which leaves a total decrease for the whole of this year compared with last of 45,162 tons. The Cleveland quarterly meeting was held at Middlesbrough last Tuesday, when, although there was a large attendance of the trade, yet business was limited, and less readiness to buy iron was apparent. The market, however, remained firm, and the general price for No. 3 is 43s. 6d. for prompt delivery, while scarcely, if any, business is doing for forward prompts. The stock in Messrs. Connors and Co.'s yards shows a further decrease for the week of 1531 tons, and now amounts to 120,908 tons. A small business is doing in manufactured, and prices keep steady at 6*l.* 10*s.* for ship-plates, and 7*l.* 10*s.* for boiler-plates. Bars are quoted at 6*l.* 2*s.* 6*d.* to 6*l.* 5*s.*, and angles at 6*l.* 5*s.*, while puddled bars rule at 80*s.* per ton. At the quarterly meeting held at Wolverhampton last Wednesday business was very quiet, and no very great change was effected in prices. Lillieshall hot-blast pigs were quoted at 65*s.*, and Staffordshire all-mine ruled at 67*s.* 6*d.* to 70*s.* Thornecliffe were quoted at 60*s.*, Tredegar at 5*s.* more, and Wellington at 10*s.* less, while 67*s.* 6*d.* is being asked for Barrow. The price of manufactures remains steady, Earl Dudley bars offering at 6*l.* 2*s.* 6*d.*, and sheets are procurable at 9*l.* for doubles and 10*l.* 10*s.* for triples.

Very little business is reported to have been done yesterday at the Quarterly Meeting, but prices remained firm; and although some few buyers tried to induce makers to make concessions, yet they met with little or no success. The present price for list bars is 7*l.* 10*s.*, and for the commoner qualities 6*l.* to 6*l.* 12*s.* 6*d.*. Crude iron has undergone no change whatever, a moderate demand only existing, and values remain as last quoted. For galvanised sheet from an advance of 10*s.* per ton to have very little effect upon the demand, and the business continues to be limited for general merchant iron, although some establishments are reported to be well off for work. The trade in Wales is reported brisk, while a fair amount of business is doing for the United States, but prices are said to be less remunerative than could be desired. Advices from New York of the 7th inst. report the market as being steady, and quotations are without change. The price for No. 1 Gartherric is 82*s.* 50*s.*, and Gleanrock 82*s.* 40*s.* and old rails keep steady at 82*s.* 50*s.* respectively.

TIN.—A large business has continued to be done in this metal, but prices have not varied to so great an extent as they did last week. There has been some pause in the upward tendency of prices, a pause which has, doubtless, originated from the taking of profits by certain operators, but the actual position of the market seems rather to warrant dearer rates. We treated largely last week with the statistical position of this metal, and then showed that owing to the reduced stocks dearer prices would, doubtless, be realised, and the course of the market this week has shown the correctness of that opinion; for, notwithstanding the various fluctuations that have been made, at no time have prices been so low as they were when going to press last Friday. There is not likely to be any check in the demand, and when we take into account the various strikes which the consumption of this metal is likely to be limited during the immediate future, because prices both in Penang and Australia are reported to be much higher than those ruling here, then there does appear every chance of our market improving, even, perhaps, to the extent of several pounds per ton. The deliveries of tin in London, Holland, and the United States for the twelve months ending the 30th ult. were 32,924 tons, against 30,349 tons for the previous twelve months, 28,555 tons for the year ending June 30, 1880, and 26,600 tons for the year terminating June 30, 1879. These are figures which speak for themselves, and need no comment; but, when taken with the other numerous favourable events which surround this market, they can hardly fail to greatly stimulate the demand for speculation, and more especially as the supply does not appear adequate to meet the regular requirements of the trade. The price in New York, also, has this week shown a considerable advance upon previous prices.

SPELTER.—The market is rather easier, and although makers continue firm lots in second hands are obtainable at lower prices. We quote to-day 16*l.* 12*s.* 6*d.* to 16*l.* 17*s.* 6*d.* for ordinaries, and 17*l.* to 17*l.* 5*s.* for specials.

LEAD.—The market is quiet, and there are sellers of Spanish in considerable quantities at 14*l.*, and buyers at 13*l.* 17*s.* 6*d.*. English is quoted at 14*l.* 5*s.* to 14*l.* 10*s.*

STEEL.—The market is steady, with a fair business doing, without noticeable change in prices.

TIN-PLATES.—A very fair business is doing, and the Board of Trade Returns for the first half of the present year show the shipments to have been large, and much in excess of those for the same time of the two previous years. At a meeting of the Tin-Plate Trade, at Birmingham, yesterday, it was resolved to advance the price 1*s.* per box.

QUICKSILVER has undergone no alteration. The demand continues fair, and the price is steadily maintained.

GOLD AND SILVER.—Messrs. PINLEY and ARLE (July 13) write:—"The only withdrawal of gold from the Bank has been the withdrawal of a sum of 50,000*l.* for Lisbon; on the other hand, this coin, to the value of 50,000*l.*, received to-day from Australia, has been sent in; there is still a demand for bars for export, consequently the bar gold by the Carthage will not be sold to the Bank. The receipts since our last have been 134,000*l.* from Australia. The Tamar has taken 12,000*l.* to the Brazils. The outbreak of hostilities in Egypt has had the effect of stopping the greater part of the orders for India, and silver has therefore declined, the amounts by the Pacific and River Plate steamers not realising more than 5½*d.* per oz., thus showing a fall of ¼*d.* per oz. from our last

week's quotation. We have received since our last—33,000*l.* from the Pacific, 44,200*l.* from the River Plate, and 24,000*l.* from the New York—79,600*l.*. The Ganges has taken 30,000*l.* to Bombay.

THE MINING SHARE MARKET continues in a very disturbed state; there is absolutely no business doing, and the dealers are occupied in the settlement of the usual fortnightly account. The mining market, however, is not alone in this particular; there is a general want of confidence, foreign stocks and some of the railways have fallen considerably, and buyers are difficult to find for any thing.

TIN.—If we may judge from statistics, tin ought to be better, and there seems to be a general opinion that it will rise. Compared with the stocks on hand at this time last year, there is a deficiency in the supplies of 1450 tons, and, as compared with 1880, a deficiency of 6000 tons. The consumption has increased in Europe from 21,150 tons in 1881 to 23,700 tons in the last twelve months. Compared with five years ago, the increase in consumption is equal to 32½ per cent. It is not so much to be wondered at, therefore, that the standard for ore keeps rising in Cornwall, and has further advanced since our last 2*l.*, making 6*l.* within a fortnight. Blue Hills, 1½ to 1½; Carn Brea, 12 to 13; Cook's Kitchen, 38 to 40; Dolcoath, 68 to 70; East Blue Hills, 9s. to 11s.; East Pool, 55 to 56; East Lovell, ½ to ¾; Killfirth, 5½ to 6; Kit Hill, ½ to ¾; Drakewalls, ½ to ¾; South Condurow, 8 to 8½; South Frances, 11½ to 12½.

West Frances, 9 to 10; West Fevor, 11½ to 12½; Wheal Agar, 16½ to 17; Wheal Basset, 9½ to 10; Wheal Grenville, 10½ to 11; Wheal Kitty (St. Agnes), 1 to 1½. Wheal Pevor, 9 to 9½; at the meeting the accounts showed a loss on four months' working of 1187*l.*, and a balance carried forward against the adventurers of 514*l.*. The tin sold (72 tons) realised 4010*l.*, or about 8*l.* per ton less than at the previous meeting. West Basset, 9½ to 10½; at the meeting here the drop in tin also had its effect, for the accounts show a loss on four months' working of 621*l.*, and a debit balance of 269*l.*. The tin sold (181 tons) realised 9700*l.*, or 53*l.* per ton. Wheal Uny, 3 to 3½; at the meeting a call of 7*s.* 6*d.* per share was made. The accounts showed a loss on four months' working of 2298*l.*. The tin sold (60 tons) realised 3411*l.*. West Kitty, 10½ to 10½; the 80 east is worth 25*l.* per fm. The 72 east 8*l.*. Other points 55*l.*. The new steam stamps will go to work next week. Wheal Coates, 10s. to 15s.; the mine has sold 7 tons of tin for 62*l.* 10*s.* per ton. The aggregate value of the ends is reported at 50*l.* per fm. Trevaunance, 2½ to 2½. Tincroft, 12½ to 13½; at the meeting here a loss was shown on four months' working of 2048*l.*. Godevere, 1½ to 1½; New Trumpet, 1 to 1½; South Crofty, 10 to 11; Tregebo, 3½ to 4.

COPPER remains steady, but business in shares has been very restricted, and with mere nominal quotations. Carnarvon Copper, 7s. 6d. to 12s. 6d.; Devon Great Consols, 4½ to 5½. Wheal Crebor, 2½ to 3; at the meeting, particulars of which will be found in another column, the accounts, charging four months' costs against four months' returns, showed a profit of 810*l.* 15*s.* 9*d.*, but five months' costs having to be brought in the profit was reduced to 339*l.* 6*s.* 6*d.*. The cash balance in hand was 848*l.* 19*s.* 2*d.*, assets over liabilities 1335*l.* 3*s.* 6*d.*. No dividend was declared. The report of this mine is very favourable, and the agents hope to sample 400 tons for the next two months. A resolution was passed empowering the committee to take such measures as they may hereafter think proper to ensure the best management of the mine. Mr. John Schofield, of the Stock Exchange, joined the committee. Devon United, ½ to ¾; Gunnislake (Clitters), 2½ to 2½. Mellanear, 4½ to 5; a dividend of 2*s.* per share has been declared, payable on Aug. 10.

New Cook's Kitchen, 6 to 6½; Parys Copper, 8s. to 10s. Prince of Wales, 8s. to 10s.; in blasting down the bottom level east on Thursday the lode, which is 3½ ft. wide, with rich stones of tin, was found by the agent to contain 1 ft. of rich copper ore, which may prove an important discovery. South Caradon have further declined to 10, 10½. South Devon, ¾ to 1. West Crebors keep firm at 12s. 6d. to 15s.; the end looks well, and there is a good lode in the shaft. Seton, 17 to 18; Monn, 4 to 5. Bedford United, 1½ to 2; the lode in the 30 east is worth 30*l.* per fathom. The stope in back of the 30 is worth 25*l.* per fathom. The winze from the 20 to 30 is worth 25*l.* per fathom. The forfeited shares were tendered for on Thursday, and nearly double the number applied for. Devon Friendship, 5s. 6d. to 6s. 6d.; the 30 east has improved, and a good discovery is expected. The new stope in the 30 west is worth 15*l.* per fathom. Sotridge, 6s. to 7s.; the stope in the 30 is worth 12*l.* to 15*l.* per fathom. The wheel-pit will be completed in a few days.

LEAD MINES continue dull, and fluctuations are merely nominal. Vans are quoted 5½ to 6½. Great Laxey, 17 to 18; the directors here have declared a quarterly dividend of 6*s.* per share. Roman Gravels, 8½ to 9. Tankerville Consols, 4s. 6d. to 5s. 6d.; the points in operation at Bog and Pennerley are looking well. Gwern-y-Mynydd, ¾ to 1. East Roman Gravels, 15s. to 17s. 6d.; the rise and stope in the back of the 109 are worth 15 cwt. of lead per fathom, and 20 cwt. of blende; the 97 south, 15 cwt. of lead. South Darren, 12s. 6d. to 15; the 120 west is worth 3 tons per fathom. On July 7 they sold 45 tons of lead ore for 616*l.* 17*s.* 6*d.*, and next week sample 100 tons of copper ore. Bwlch United, ¾ to 1; Coed-y-Fedw, 1 to 1½; Goddard, 1 to 1½; Great Holway, 5 to 5½; Lead Hills, 2½ to 2½; North D'Esrey, ¾ to 1; Pennant, ¾ to 1; Pen-yr-Osred, 10s. to 20s.; Sinclair, 1 to 1½; West Holway, 1 to 1½.

FOREIGN MINES.—Akankoo, ½ to ¾; the Jessy left the Thames on Monday for Axim. She takes the staff of European miners, &c., and also houses, stores, plant, and all accessories for the proper opening up of the mine. Alamillos, 1½ to 2; Almada and Tiritio, ½ to ¾; Anglo-African Diamond, 6 to 7; Broadway, 2 to 3; Canadian Copper and Sulphur, ½ to 1½; Cape Copper, 5*l.* to 5*l.* 3*s.*; Chile Gold, ¾ to 1; Colorado United, 1½ to 1½; Devala Moya, ¾ to 1; Devala Central, ¾ to ¾; Fortuna, 3½ to 4½; Frontino and Boliva, 2½ to 2½; Indian Consolidated, ¾ to ¾; Indian Glenrock, 1½ to 1½; Indian Phonix, 1½ to 1½; Indian Trevelyan, ¾ to ¾. Kapanga, ¾ to ¾; a telegram from the manager states that since the last message they have crushed 50 tons of quartz. The yield has been 160 ozs. gold; prospects good. La Plata, ¾ to 1½, and a large business doing. Linars, 4 to 4½; Mason and Barry (to bearer), 16½ to 17; Mysore Gold, ¾ to ¾; New Quebrada, 3½ to 4½; Ooregum, ¾ to 1; Panulcillo, 5½ to 6½; Potosi, ¾ to ¾; Rhodes Reef, ¾ to ¾; Richmond, 7½ to 8½; Rio Tinto shares 23 to 24; Ruby and Dunderberg, 1½ to 2; South-East Wynaad, 3 to 3½; Tumbacherry, ¾ to 1½; Tharsis Sulphur and Copper, 40 to 41; Tocopilla, ¾ to ¾; Wentworth Gold, ¾ to ¾; Wynnaad Perseverance, 1 to 1½.

Copapo, 3 to 3½; Don Pedro del Rey, 5s. to 7s. 6d. Bratsberg, 1½ to 1½; the report states that the mines are looking very well, and everything progressing satisfactorily; the points in operation are valued in the aggregate at 312*l.* per fathom. Nouveau Monde, 7s. 6d. to 10s.; Michipicoten, ¾ to 1½. Yuba River, par ½ prem.; the clean up for June amounts to 20,000 for 20 full days work. Birdseye, 1½ to 1½; Placerville, 1 to 1½. Organos Gold, 2 to 2½; in a report just received it is stated that during the past four months 106 fms. have been driven on principal lode, and 146 tons of ore extracted, the estimated yield being 4 ozs. to the ton. Gold Run, 1 to 1½; Colombian Gold, ¾ to ¾; Quartz Hill, 3s. to 5s.; Corporation of South Australian Copper, 1 to 1½; Tolima, 2½ to 3½.

The Market for Mine Shares on the Stock Exchange has been very inanimate all the week, and it is exceedingly difficult to sell at any price, although there is no material change in nominal quotations. There has been a further advance in the tin standard of 2*l.* per ton, the general prospect of the metal markets is brighter, and there is certainly nothing to lead to the anticipation that mining will be injuriously affected, yet business is practically at a standstill, even the Indian and foreign mines having been much less dealt in. The St. John del Rey directors may congratulate themselves that the law officers of the British Crown consider that a criminal prosecution against them would fail; the report of the reference to the matter in the House of Commons will be found in another column. The matter being brought before the British Parliament in the way it has been will be of immense advantage to the now emancipated slaves in Brazil, and it may become a question whether if the many years wages due to the said slaves be not compromised the judgment could not be enforced by distraint upon the property in Brazil through the Brazilian law courts. Advices from Brazil are not very

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Incorporated under the Companies Acts, 1862 to 1880, whereby the liability of the shareholders is limited to the amount of their shares.

Capital £510,000, in 100,000 preferred or A shares of £5 each, and 2000 deferred or B shares of £5 each fully paid.

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ABRIDGED PROSPECTUS.

This company has been established to acquire the exclusive rights to the patents, English, foreign, and Colonial, granted to Mr. John Banting Rogers, as scheduled, which form a complete system of electric lighting, together with the valuable plant and stock-in-trade at the works, Holborn Viaduct and Farringdon-street, in the City of London, as a going concern.

This being a parent company, and taking its comparative merits, it is believed that it must occupy the first rank, and become a great power in the scientific change which is now taking place.

The sub-division of the electric current has hitherto been the great desideratum, and the fact that Mr. Rogers obtained the first patent for a system of sub-division, dated 20th Sept., 1880, which is prior to any other patent for this specific purpose, shows that he was one of the earliest workers in this direction.

The lamp invented by Mr. Rogers for the division and sub-division of the electric current is a complete success. It is simple and effectual in operation, and is available without the slightest difficulty for lighting public or private buildings, streets, railway stations, railway carriages, steamships, and mines. In effect, the electric current is practically as much under control as gas, and can be utilised for domestic, manufacturing, and other purposes.

The applications received from various parts of the United Kingdom for concessions not only indicate the value of the inventions, but afford evidence of the lucrative returns likely to be secured. It is also confidently anticipated that large profits will be realised from the sale of the foreign and colonial patents.

This being a construction company it will undertake the manufacture, maintenance, and supply of everything necessary for carrying out contracts relating to electrical lighting or power, in all districts for which concessions, with exclusive rights, have not been previously granted by this company.

No promotion money will be paid by the company. The vendors, who are the promoters of the company, will defray the preliminary expenses (except brokerage) up to the date of all allotment.

Application will be made in due course for a settlement and quotation upon the Stock Exchange.

Looking to the fact that this company has acquired the sole right to all the varied and valuable patents, British, foreign, and Colonial, the enterprise offers exceptional advantages for fostering the formation of subsidiary companies, and in respect of profit promises to rival every similar undertaking.

Copies of the Memorandum and Articles of Association, scientific opinions, and the contracts, may be seen at the offices of the solicitors of the company, where the fullest information can also be obtained.

Full Prospectuses and Forms of Application can be obtained at the offices of the company.

If no allotment is made the amount paid on application will be returned in full, and where the number of shares allotted is less than the number applied for, the balance of the deposit will be credited in reduction of the amount payable on allotment.

EXTRACTS FROM OPINIONS OF THE PRESS.

THE J. B. ROGERS' ELECTRIC LIGHT AND POWER COMPANY (LIMITED).
MORNING POST, April 7th, 1881.—"It certainly seems that Mr. Rogers has successfully solved the problem of dividing the electric current, and his system bids fair to render electric lighting perfectly available and convenient for private dwellings."

THE J. B. ROGERS' ELECTRIC LIGHT AND POWER COMPANY (LIMITED).
MORNING POST, January 31st, 1882.—"The light was perfect, whether there were five or six lights on the circuit, or whether it only charged one light."

THE J. B. ROGERS' ELECTRIC LIGHT AND POWER COMPANY (LIMITED).
DAILY NEWS, April 7th, 1881.—"The equal distribution of the current under any circumstances was a feature of the invention which attracted special notice, and with regard to the apparatus for producing motive power demonstrations were made tending to show its practical utility, its adaptation to lamps for private houses and workshops, and the economical nature of its working."

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THE STANDARD, Feb. 2nd, 1882.—"Mr. Rogers' speciality consists in the ability to divide and sub-divide the electric current to any degree of minuteness, and in such a manner, that while there is a general distribution of the electric force, each lamp has a circuit to itself."

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THE J. B. ROGERS' ELECTRIC LIGHT AND POWER COMPANY (LIMITED).
CITY PRESS, March 25th, 1882.—"In its present form of almost perfect development we cannot doubt that the inventor's plan will soon be very extensively

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This Company has been formed for the purpose of acquiring the Patent for the United Kingdom of the invention known as the Electric "Sun" Lamp, the advantages of which are now so well known, and for promoting local Companies or Associations for the working of the same. The extracts from the Press enclosed in the prospectus unmistakably testify to the high opinion which is entertained of this system of lighting.

The advantages of the Electric "Sun" Lamp may be briefly explained as follows:—

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2. The absolute steadiness of the Light.
3. The beauty and clearness of the Light.

The Light is peculiarly valuable for Factories and Workshops, Printing Offices, and for all purposes of Street Illumination, Docks, Wharves, and all outdoor purposes.

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As regards the annual expense of maintaining the lights, the first cost of carbons and refractory materials for a "Sun" Lamp of any candle power would be only about one penny per day of five hours.

The Electric "Sun" Lamp has been exhibited in Paris, in Brussels, and can be now seen in full working order in London at the Royal Exchange Vaults (Restaurant); Brown's Library at Liverpool; the Royal Engineers' Barracks, Chatham, &c. (See full prospectus.)

It will be seen, therefore, that the combined sources of income of this Company are of a very important character, and looking to the superiority of the "Sun" Lamp and its remarkable simplicity and cheapness, the Directors look forward to the enterprise commanding the confidence of the public, and the shares quickly attaining a high position in the market.

Full Prospectuses, containing particulars of the contracts which have been entered into, and Forms of Application for Shares can be had at the Bankers of the Company, or from the Secretary, at the Offices of the Company, 14, Queen Victoria-street, E.C.

A large number of applications with a view to installations of this system have already been received, and will be taken in hand immediately after the allotment of shares.

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References: A. L. ELDER, Esq., Bishopsgate-street; A. J. SCRUTTON, Esq., Stock Exchange; and Editor of the MINING JOURNAL, London.

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By JAMES ROSE.
Batman's Hill Ironworks, Bradley, near Bliston.

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Notices to Correspondents

EGYPTIAN SECURITIES.—"E. M." (Grange Club).—A respectable broker, and the advertisements of many will be found on the front page of the Journal, will give you the necessary information as to the probable future of any shares you may wish to sell or speculate in, or you can advertise. Our charge is 5s. for eight lines or fewer, and 8d. for each additional line.

RELINQUISHMENT.—"A. S." (White Ladies' Road).—There is no special form for the relinquishment of shares in Cost-Book mines. All that is necessary is to send a letter (which it is as well to register) to the pursuer of the company stating that you relinquish your shares as from the date of the letter, and that you are prepared to pay immediately your share of all outstanding upon being furnished with full statement of account.

THE PURDY SAFETY-LAMP.—"H. K." (Derby).—The description was given in the Journal long since, but the lamp has not been largely adopted. Its principal feature is the substitution of a metallic dome for the usual glass globe, to which is fitted an ordinary copper cap. The inner tube is held in position by the glass. The glass is secured in its place by a gauze drum and ferrule, which faces air-holes in the rim of the gallery. To the neck of the gallery the oil vessel is fastened in the usual manner. By the application of the outer dome the gauze is effectually protected against the effect of fast currents of air. The passage of the gases is, at the same time, so arranged that perfect sensitiveness is secured, and dangerous gases will effectually put it out. The unlocking is done by means of an air-pump of peculiar construction, so that the improper unfastening of the lamp by the miners is rendered impracticable.

Received.—"M. G." (Manitoba).—"Old Reader" (Bristol).—"Caution" (Waltham stow) should write to the directors—"Shareholder" (Grogwinion).—"Amateur" (Manchester).—"R. S. T." (York).—"W. C."—"T. C. K." (Kimberley).—"N. T."—"G. H. P." (Dublin).—"D. C. D."—"P. W. F." (Neath).—"H. B."—"G. H."—"J. G." (Newcastle) wishes for information respecting the New Conway Valley Freehold Mining Company.

THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, JULY 15, 1882.

MINEOWNERS, AND ELECTRIC WIRES.

Some recent events in connection with the electric light show that it may seriously affect the interests of mineowners in all parts of the country where it may be introduced. If the wire is placed above head it is dangerous to persons coming in contact with it; or, if insulated, it may have its power destroyed by the subsidence of the ground. In mining operations we know that the surface frequently gives way, owing to the extensive nature of the excavations that may have been made; but in these cases there is a recognised law on the subject. Where the mineral has been wrought, a man who builds with a knowledge that such has been the case takes the chance of a subsidence or not. But where a building has been erected long before the mineral has been excavated, it is a very different thing when it is let down by the removal of the strata below. With respect to the putting down of electric wires, it is now considered that they must be buried underground as a precaution against injury, and it is only a few days since that a man, having become entangled in one above him, was nearly doubled up by the force of the current. The question then arises as to how the wires may affect mining operations, and who are to be liable for the consequences. In mines of moderate depth it is quite likely that the wires may be let down and their required effect destroyed even to the extent of preventing the lighting of a town, village, or works; or, with respect to surface works, there may be an extension of the tramways for a considerable distance from an established mine or a comparatively new one, and this might lead to the wires being lifted out of their place and their working greatly impeded. Were the electric companies to have power to put down wires and be legally protected from having them disturbed by mineowners whilst carrying on the work in the usual manner, it would be a very serious matter for them indeed. It might be that the wire gave way by being lowered by subsidence, or was rendered powerless by being intercepted in the making of a road from a mine to a railway. If, in either of these cases, an electric light company could claim and be entitled to damages, it would be a most serious matter for the mineowner, who, when taking to a certain mineral property, never contemplated such a contingency, otherwise he would have taken such risk into consideration when agreeing with the lessor. The wires, it may be said, by which the electric current is conveyed are not the little things that most people consider them to be, for we are told that in all probability they will be from 2 to 4 in. in diameter, have to be placed in tubes, and these will have to be covered.

In the case where these wires are insulated and laid in iron pipes at a comparatively low depth from the surface, they might get out of order without any person being able to give the reason why, and yet the owner of a mine might be held responsible unless protected by legislative enactment. This could be effected in various ways. When the Select Committee of the House of Commons met for the consideration of the Electric Lighting Bill of the Government, the Mining Association of Great Britain was represented, and on their part it was proposed, to release them from all responsibility, that a clause should be inserted in the Bill to the effect that the owners or workers of any coal or other mines who, at any time after the passing of this Act, shall be desirous of making or constructing, altering or removing any surface tramways or other works in connection with the working of such mines or minerals, and for such purpose shall find it necessary to disturb, alter, or divert any electric line or other works of the undertakers empowered by this Act to be laid down or made, shall be empowered at their own expense to make, construct, alter, or remove any such surface tramways or works, and for that purpose to divert or disturb any such electric line or other works of the undertakers, on proper terms or regulations to be made by the undertakers for that purpose. One would have thought that this proposition was a very fair one, but the Committee evidently thought that it was asking too much. As it is, where the wires were laid along a road the clauses in the Waterworks Acts would come into operation, as it is admitted that the mines underneath a road belong to the mineowner, and it is questionable whether he is *de facto* obliged to uphold it. An illustration of this was given by one of the legal gentlemen, who pointed out that in the salt district of Cheshire, where there was a great subsidence caused by the extraction of the brine, the mineowners were not responsible for it, so that a Bill was introduced for the purpose of remedying the so-called defect. It appears to be questionable, then, whether a mineowner is liable for letting down the road, but were he the cost of raising the land to its original level would not be of any consequence; but in the case of letting down electric wires and assuming the liability of mineowners the consequences would be most serious, for an electric light company might claim enormous damages for a breach of contract they had rendered themselves liable to in consequence of the damage done to the wire by its subsidence. Consequently it was argued that if mineowners were protected from any claims by owners of tramways—as was held to be the case—there was a much greater necessity for protecting them against any claims that might be made by electric light companies. The latter have already had great and important concessions made to them, and there is no reason why for their benefit mineowners should have fresh liabilities imposed upon them. Already they are the largest of ratepayers, as they are also the largest of employers, and their burdens are by no means light. On the other hand, the electric light companies have done well before their light has been actually successful as being more economical than gas, whilst they are not likely to pay much in rates to the place where the wires will pass. Therefore we hold that the mineowners' position should be first considered, and that their present obligations should in no way be increased.

The Select Committee, we were glad to find, modified the Bill a good deal in the direction we have pointed out, as a matter of right for the mineowners, and inserted a clause to the effect that "nothing in the Act shall limit or interfere with the rights of any lessee, owner, or occupier of any mines or minerals lying under or adjacent to any road along or across which any electric wires shall be laid to

such mines and minerals." Some other alterations of the clauses were made so as to leave mineowners in the same position as they have been before electric lighting was introduced. In all probability there would have been a very different result had the Bill been allowed to pass in committee without any opposition. The mineowners in all parts of the kingdom are, therefore, under a considerable obligation to the Mining Association and of their able representative, Mr. Peace, for the successful efforts they have made to prevent fresh burdens being thrown upon them, and this, we feel sure will be most cordially conceded by those connected with both coal and metalliferous mines. However, it will be as well for the mine-owners to watch the progress of the Bill through its various stages, so as to see that no material alterations are made in it that may affect their existing and acknowledged rights.

MINE INSPECTION IN AUSTRALIA.

The report for 1881 of the Chief Inspector of Mines in Victoria to the Honourable the Minister of Mines is scarcely so unfavourable as those of preceding years. There was hope for the belief that greater knowledge of the causes of accidents, and of their generally preventable nature, and the better observance by miners of the rules and regulations promulgated for their safety would naturally lead to still further reduction in the yearly list of casualties; and although there has been some disappointment in this respect, so far as the last year's operations are concerned, there appears to be no well-grounded reason why the favourable anticipations of increasing benefit from the working of the Act for the Regulation of Mines should not still be fully realised. In considering the accidents of the past year it appears that the total number of persons killed and injured, as compared with the number of miners employed, is not much in excess of those of immediately preceding years in which such favourable results were shown; but, unfortunately, the accidents of the past year have been attended with more fatal consequences, and deaths have been more numerous than for any period since the year 1875. Last year's casualties may, therefore, be fairly considered as exceptional in their character from the disproportion of fatal injuries. The analytical tables show that the excess of deaths in the year 1881, occurred chiefly in connection with quartz mining, in the Sandhurst and Ararat districts, and, as usual, it may be justly said that the accidents were mostly caused by the want of forethought and care on the part of the sufferers. No amount of supervision will remove the natural carelessness of men's natures, and familiarity with danger appears to have such an effect upon many, as to induce them to display greater heedlessness in pursuing their work. As a check upon this tendency to incur unnecessary risk, it should be the duty of every manager of a mine to discharge any person found to be careless in the observance of the regulations of the mine; in order not only to save the man himself from possible injury, but also to prevent him from being the proximate cause of injury to others, who might otherwise, at times when pursuing their work, have to be dependent upon his prudence and care.

The report throughout gives evidence of great exertions having been made to get the Act obeyed and utilised both by the chief inspector—Mr. Thomas Couchman—and by his assistants. During the year reported upon there were 38,436 miners employed and the total number of accidents was 157. The proportionate number of persons killed of those employed in and about the mines has been 1.87, as compared with 1.31 per thousand in 1880, and with 1.93 per thousand in 1874 (the first year in which a regulation of mines statute came into operation). The proportionate number injured has been 2.81 per thousand, as compared with 2.23 per thousand in 1880, and 2.26 per thousand in 1874; or in other words, had the total number of miners employed in 1874 been the same as in the year 1881, the diminution of the number killed would have been 2, and of the number injured would have been 94, with a total diminution of the numbers killed and injured in corresponding proportion of 96. From accidents at surface 19 deaths resulted, and from accidents below the surface, 53; of those killed 67 were Europeans, and 5 were Chinamen; 41 of the men killed were married, and they left 172 orphan children. The deaths were nearly 1.3 per thousand of the mean number of alluvial miners employed during 1881, and of quartz miners 2.665 per thousand. The mean number of alluvial miners employed during the past year was 22,301; therefore, one death occurred in every 769 miners engaged in this branch of mining. The mean number of quartz miners employed during the year was 16,135; consequently the death-rate through mining accidents was one in every 375 miners. The average death-rate per thousand of both classes was 1.873, or one death to every 534 miners employed. The analysed statement shows that while the number of deaths from falls of earth or rock underground and on the surface has been as usual, large, the increase of fatal casualties in the past year has been caused in a great measure by the much greater proportion than usual of deaths from falls of material down shafts, cage accidents, machinery in motion, and accidents in connection with explosives.

It may be said that all those cases in which injuries were received from falling down shafts, &c., were the want of care on the part of the sufferers. One man fell by carelessly stepping into an insecure bucket, hanging over the mouth of a shaft; one while being drawn up a shaft at the end of a rope to which he was not stayed, contrary to the Act; one fell while foolishly attempting to jump into a cage in motion; and another, in going to a windlass, slipped and fell into an underlie shaft. One man who was subject to fits, fell off a temporary ladder; and another, who was also supposed to have suffered from a fit, fell awkwardly down a shaft while engaged at the windlass. Nearly all the injuries from fall of materials down shafts were also due to want of care. One man was injured by the fall of an ascending full bucket, supposed to have been carelessly fastened to its hook; two by the fall of timber with a chain attached; the chain snapped asunder as the timber was being lowered down a shaft. This accident was supposed to have been due to defective fastenings. Another man was injured by a fall of slabs which were being raised up a shaft, after having been carelessly fastened by the sufferer. Nearly all the non-fatal casualties from cage accidents were also of a preventable nature. In this class of accidents two men were jammed and severely injured, while attempting to enter descending cages without giving the usual notice to the engine-drivers. Two men were struck by descending cages while their heads were projected over the mouths of shafts. Accidents are not unusual from this exceedingly foolish practice. One man got his arm broken by projecting his elbow beyond the side of a descending cage while searching for a match to light a candle.

OUR RAILS ABROAD.

The exports of our iron rails continue to exhibit a marked contraction, but the shipments of our steel rails keep up fairly well. The total quantity of steel rails which left the United Kingdom in June was 2111 tons, as compared with 13,254 tons in June, 1881, and 25,417 tons in June, 1880. The United States did not take any iron rails from us in June, while 10,616 tons went to the great Republic in June, 1881, and 17,572 tons in June, 1880. The collapse of the American demand almost entirely accounted for the diminished shipments of iron rails last month, as compared with the corresponding months of 1881 and 1880. There were also no iron rails exported in June to British America, while in June, 1881, 772 tons went in that direction, and 51 tons in June, 1880. The exports of steel rails from the United Kingdom in June were 69,152 tons, as compared with 69,527 tons in June, 1881, and 66,582 tons in June, 1880. The United States figured in these totals for 21,223 tons, 21,082 tons, and 14,342 tons respectively. On the other hand, the exports of British steel rails to British America declined in June to 15,824 tons, as compared with 20,458 tons in June, 1881, and 17,074 tons in June, 1880. Larger exports of steel rails were made last month to Russia, Sweden, Italy and Chili; and these increased deliveries nearly compensated for the falling off in the Canadian demand. British India took 5157 tons of our steel rails last month, as compared with 6002 tons in June, 1881, and 11,995 tons in June, 1880. The shipments of our steel rails to Australia amounted in June to 5781 tons; in June, 1881, they stood at 4684 tons, and in June, 1880, at 14,381 tons. If we pass on to the aggregate exports of British rails for the first half of

this year we find that the shipments of iron rails fell in the six months ending June 30 to 33,596 tons, as compared with 73,427 tons in the corresponding period of 1881, and 83,781 tons in the corresponding period of 1880. The falling off in the external demand for our iron rails was, however, more than compensated for by the great increase observable in the shipments of our steel rails. The latter were exported to June 30, this year to the extent of 357,819 tons, as compared with 267,387 tons in the corresponding period of 1881, and 233,559 tons in the corresponding period of 1880. It follows that the combined shipments of iron and steel rails to June 30 this year amounted to 391,415 tons, while the combined shipments in the first half of 1881 did not exceed 340,814 tons, and in the corresponding period of 1880, 317,340 tons. The United States are still our largest external customers for rails, 20,567 tons of iron rails having been shipped to the Americans in the first half of 1882, while the corresponding deliveries stood at 65,085 tons in the first half of 1881, and at 62,671 tons in the first half of 1880. The Americans also took 101,234 tons of our steel rails to June 30 this year, as compared with 92,746 tons, and 63,907 tons in the corresponding periods of 1881 and 1880 respectively. The colonial demand for iron rails has fallen off this year, but the shipments of steel rails to the three principal colonial groups have showed a satisfactory increase this year. This will be seen by the annexed statements. Exports of iron rails to the principal British colonies in the first halves of the last three years:—

	1880—tons.	1881—tons.	1882—tons.
Colonial Group.....	293	797	217
British America.....	9,080	2,083	3,737
British India.....	2,399	1,005	2,381
Australia.....	11,772	3,855	6,335
Totals.....	11,772	3,855	6,335

Exports of steel rails to the three principal British colonies in the first halves of the last three years:—

	1880—tons.	1881—tons.	1882—tons.
Colonial Group.....	33,878	42,949	32,223
British America.....	55,851	21,430	52,018
British India.....	37,732	37,343	34,169
Australia.....	127,461	101,722	118,410
Totals.....	127,461	101,722	118,410

It follows that the aggregate colonial demand for British iron and steel rails to June 30 this year amounted to 124,745 tons, as compared with 105,607 tons in the corresponding period of 1881, and 139,233 tons in the corresponding period of 1880. It is satisfactory to note that the demand for our steel rails is reviving in South America, although Peru having failed to keep faith with her creditors, appears to be no longer a client for our rails, as she can, of course, no longer attract foreign capital to her shores. Brazil and Chili have, however, taken the following quantities of British steel rails during the first halves of the last three years:—

	1880—tons.	1881—tons.	1882—tons.
Brazil.....	7,797	17,680	22,159
Chili.....	302	182	2,383
Totals.....	8,099	17,862	24,542

The vigorous policy which the Government of Dom PEDRO SEGUNDI is pursuing in developing the vast natural resources of Brazil is thus bearing fruit so far as the consumption of British rails is concerned. When we review the situation, as a whole, it must be admitted that the external demand for our rails has maintained itself far better than could upon the whole have been anticipated.

QUICK SILVER.

TO THE 30TH OF JUNE, INCLUSIVE.

	1881.	1882.
Season's import entries, bottles, about	45,478	about 46,497*
Imports from Jan. 1 to June 30	45,478	41,497
Exports	11,433	18,636
Imports for June.....	9,488	6,489
Exports for June.....	1,413	4,954
Price, 1881, about 6 <i>l.</i> 10 <i>s.</i> per bottle; 1882, about 5 <i>l.</i> 18 <i>s.</i> 9 <i>d.</i> per bottle. Stock in London to June 30, 1882, roughly calculated, is about 106,500 bottles.		

* Including last December, Spanish.
London, July 8. J. BENNETT BROS.

THE COPPER TRADE.—The following are the Customs Returns of Copper for the past month, and also for the first six months of this year, reduced to a common denominator, and compared with the same figures in 1881:—

	1882.	1881.
Copper, in pyrites.....Tons	1561	1111
Ditto, in ore.....	984	1948
Ditto, in regulus.....	462	436
Ditto, in precipitate.....	1718	1471
Foreign raw copper.....	1943	3022
Total tons.....	6668	7988
Value of above.....	£373,408	£437,564
IMPORTS, JANUARY 1 TO JUNE 30.		
Copper of all descriptions.....	42,878	40,154
Value of same.....	£2,691,686	£2,416,893

MIDLAND INSTITUTE OF MINING ENGINEERS.—The annual meeting of the Midland Institute of Mining, Civil, and Mechanical Engineers was held on Wednesday at the Institute Rooms, Barnsley. The officers for the ensuing year are as follows:—President, Mr. T. Carrington, Kiveton Park Collieries; Vice-president, Mr. John Gerrard (Government Inspector of Mines), Mr. J. O. Greaves, Wakefield, and Mr. W. H. Chambers, Barnsley. The annual dinner was afterwards held at the King's Head Hotel, the President (Mr. T. Carrington) in the chair.

MINING IN IRELAND.—COAL AND IRON IN ULSTER.—There were last year imported into Belfast 30,000 tons of various manufactured iron, and about 800,000 tons of coal, altogether representing in round numbers 1,500,000*l.* This, or an approximate sum, is paid annually from this country, whose iron fields are practically inexhaustible, and, according to the report of Mr. G. Phillips Bevan, who recently read a paper on the subject before the Statistical Society, there are in the Ulster coal fields 48,000,000 tons of coal. The little nation of Belgium, with only half the universal resources of Ireland, are sending their engines and machinery, and competing with England even in the very centre of mechanical industry, and Belgium and Prussian coal is daily sold in the London market. Last year the foreigner sent into Great Britain a total of 200,000,000*l.* of manufactured commodities; there were imported 2,000,000 tons of iron ore, and, considering freight, this large quantity cost almost as many pounds. Were English commercial gentlemen versed in the iron ore capabilities of Ireland, in hematite and other iron ores, a large amount of this money would have found its way to this country instead of to Spain; and Englishmen who visit Ireland in quest of iron ore should direct their attention to the enormous supply that could be procured in the County Down from Craigavad, near Holywood. The seam of it extends at interval distances across the Holywood hills to Deemot, a distance of 22 miles. The hematite iron ore is associated with the shale and clay-slate. The brown iron ore is found in abundance with the beds of coal and fire-clay, and the ordinary ironstone in the coal district of Tyrone. Sir Robert Kane states:—"I have examined specimens of it not picked, but taken at random from heaps of it thrown out of the pits, and which may therefore represent its usual quality. This ore should hence have given, by appropriate treatment, 57 of iron per cent., or from 35 cwt. of ore per ton of iron. This ore could easily be procured by lighters to Belfast. From the Messrs. Musgrave's estate in Donegal there has been shipped lately in large quantities bog iron ore to London, Liverpool, and Manchester for the purification of gas, and once their new works of harbour and breakwater are finished on their estate in Donegal they will be prepared to ship from Donegal the best undulated ironstone in the world." Considering the vast deposits of iron ore in Antrim, Down, Tyrone, and Donegal,

the mountains about Belfast so full of limestone, lithomarge clay band, rotten rock, and moulding sand, it is surprising that the art of manufacturing 30,000 tons of iron annually for the home consumption, and thousands, if not millions of tons for export has not been cultivated.

THE ST. JOHN DEL REY MINING COMPANY.

In the House of Commons on Tuesday Mr. Pease asked the Attorney-General whether, during the administration of the late Government, steps were taken in view of a criminal prosecution of the directors of the St. John del Rey Mining Company for the working of a large number of slaves in their mines, and evidence obtained for that purpose, and whether the law officers of the Crown intended to proceed with the prosecution.

The Attorney-General said he could not state what steps were taken by the late Government; but a case had been laid before the Solicitor-General and himself by the Treasury, in order to determine whether a criminal prosecution should be instituted against the directors of the company. His learned friend and himself had come to the conclusion that the conduct of the directors was very reprehensible; but as, regarding a criminal prosecution, great difficulties presented themselves. In the first place, the original purchase occurred 40 years ago, and many of the persons concerned in it were now dead. Secondly, the documents which would have to be put in evidence were not within our jurisdiction, even if they were in existence at all. It was found impossible to take even the preliminary steps, and, therefore, they had advised that there was no chance of maintaining such a prosecution with success.

Mr. O'Kelly thought there would be no difficulty in obtaining the necessary information. It was by no means unusual for British subjects in slave-owning countries to have slaves.

The Attorney-General said the question was one of the transfer and purchase of slaves. The prosecution would have been instituted if there had been any likelihood of its being successful.

MANCHESTER AS A PORT.

Brief reference was recently made in the *Mining Journal* to the proposal to construct a tidal navigable ship canal from Liverpool to Manchester by the widening of the Rivers Mersey and Irwell. The subject has been mooted over and over again, but it never before assumed such a tangible and definite shape, and the proposal never grew to the like proportions. Many circumstances have conspired to produce an intense feeling of soreness among Lancashire men, more especially among the manufacturers of Manchester, Oldham, and surrounding districts. The Liverpool Cotton Ring intensified that feeling to almost fever heat. Then, again, Manchester men complain bitterly, and apparently not without reason, with regard to the high rates of carriage charged for all kinds of wares and merchandise by the railways' "Conference," or "Ring." The latter aspect of the question is dealt with in an exhaustive manner in the evidence given by Mr. Peter Spence, J.P., at the suggestion of the Manchester Chamber of Commerce, before the House of Commons Committee on Railway Rates in 1881-2. This evidence has been reprinted in pamphlet form, and is being extensively circulated in the district. According to this evidence the mileage rates are oppressively high; in some of the instances quoted they are ruinously high for competition purposes. Mr. Spence declares that he himself, as a manufacturer, is excessively taxed to the extent of 3*s.* 6*d.* per ton upon every ton of goods sent to or received from Liverpool, and so with every manufacturer or trader dealing in "undamagable goods." One of the reasons for these excessive charges is declared to be that the railway companies have the control of the canals, or at least that they influence the rates and conditions to such an extent as to amount to control. The result is that "tolls are levelled up" by a kind of Ring process until something like uniformity of rates is reached, those rates being pushed to the highest point. He and others declare that practically there is no real competition either between railway company and railway company, or between the railway companies and canal companies, and he maintains that position with an array of facts and figures which is formidable, if not unanswerable.

The action of the Manchester Tidal Navigation Company is not merely supported by complaints such as those alluded to, it is backed by facts and figures of a still more formidable character, showing the advantages of the scheme, its practicability, and the probabilities of its being a great financial success. The present available modes of transit between Manchester and Liverpool are—1. The public highway.—2. Two canals.—3. Five railways. Little traffic of a heavy kind is done on the main roads, although it is computed (see Mr. Spence's evidence) that the cost by road would be 25 per cent. less than by rail. Other difficulties, however, exist that render road traffic undesirable, in addition to which it is much slower than by rail. With regard to the two canals, it is maintained that they are virtually controlled by the railway companies, so that the public gain nothing by way of cheaper transit by the existence of those two waterways. The promoters of the scheme estimate a saving of over a million sterling in the matter of inland navigation alone, besides the Mersey Docks and Harbour dues, estimated at one-third of a million sterling. In addition to which it is urged that there will be material saving upon foreign traffic—that is, upon goods loaded into steamers for distant foreign markets. Other advantages are fore-shadowed, such as a saving in terminal charges, in forwarding charges, in direct supervision, and delivery expenses from the warehouse to the ship. But the great inducement will perhaps be in the foundation of new industries, the development of new trades, and the immense impetus to languishing industries which would thereby be given. It is suggested that the return cargoes of produce, native and foreign, would be immense, and that its coming direct to Manchester would lessen the cost very materially, and thus tend to render cheaper all articles of food and other like commodities. Of course, the extension of Manchester and Salford would be a natural and sure result of the scheme if carried out, and the Lancashire coal fields would be opened up to a greater extent than at present. The breaking down of the Liverpool Cotton Ring, and the removal of the cotton market to Manchester, are regarded as desirable objects, and in this respect it is urged that an immense boon will be conferred upon Manchester. The facts brought forward in support of this view are unanswerable. It is stated that a saving of a farthing per pound has been effected by the Oldham cotton spinners by purchases made at Bremen and Havre and imported *via* Hull, notwithstanding additional heavy railway charges by reason of the greater distance, instead of buying at Liverpool as formerly. A more general public advantage of the proposed tidal river is, it is urged, that it would afford an immense outlet for the deep rainfall of the district, and prevent floods between Warrington and Manchester.

It must be admitted that the prospective advantages to Manchester would be great, and they are well marshalled by the promoters of the scheme. We have pictured before us a spacious port in the valley of the Irwell, beyond Old Trafford, with three miles of quays, crowded with stately ships, laden with the products of every clime. Such is the picture, and it is enough to dazzle and enchant the enterprising merchants and manufacturers of Cottonopolis. Is the scheme a practicable one? Mr. Daniel Adamson is convinced that it is; Mr. Fulton, an engineer, shows us how it can be carried out, and Mr. Hicks has entered into elaborate calculations from which it would appear that capitalists embarking their money upon it may reckon upon satisfactory dividends. The statistics collected refer to the growth of other ports, and their rapid extension and undoubted prosperity. In an analysis of Liverpool exports for 1880 it is shown that of the 84,029,729*l.*, by far the larger proportion of Liverpool exports must proceed from or through Manchester; 43,458,806*l.* were from cotton manufactures alone. And if the five leading manufactures were only taken, it is found that out of an aggregate of 68,745,847*l.*, cotton leads the list with 43,458,806*l.*, as before stated. It is asserted that Liverpool depends greatly upon Manchester trade, and facts seem to bear out the assertion. Hence it is perhaps that the Cotton Ring is so heartily hated, and hence also it is that Manchester wishes to swell the tide of her prosperity by the waves of the sea beating at her very doors. It is urged against the scheme that the Irwell, at Throstle Nest, is 61 ft. above the sea level, and that,

therefore, the excavation will have to be 81 ft. deep to allow a depth of water of 22 ft., sufficient for ocean going steamers. And it is said that this excavation must extend to the whole of the proposed docks and quays. At other points the sea level is more nearly approached, until at last its tidal level would be reached. But the depth of excavation is not its worst difficulty, if it were this would be easily got over. The greatest difficulty will be the interests that will be ranged against the proposal when it comes before Parliament, and when compulsory powers are asked for purchasing and for other purposes. Railway interests will coalesce with vested interests in Liverpool with the view of defeating the whole scheme. This will be the tug of war. It will be a war of Titans, capital and interest against capital and interest; and Manchester will have the disadvantage of having to carry the war into the enemy's country; her force will be an invading force, and as such will be resisted with might and main. But leaving conflicting interests on one side, we cannot see that there are any insuperable difficulties of an engineering kind in the way of the project; as a financial scheme it is more than probable that it would be a paying concern; and as for its advantages to Manchester they would be immense. Nor do we think that Liverpool would seriously suffer. Manchester could never blot out Liverpool as a port, even if such were her desire. The proposal and its plans might, therefore, be discussed with calmness and equanimity on either side—without passion or prejudice, or fear of injury to existing interests, though in one or two instances they may be diverted were the navigable canal to become a reality.

UNITED SHEPHERDS WHEEL NOSE, AND THE WRECKING SYSTEM.

That promoters sometimes permit their sanguine temperament to override their judgment in the preparation of prospectuses upon which they rely for attracting capital from the public may be admitted; but, at the same time, promoters are entitled to protection against the systematic wrecking of the enterprises they bring forward by third parties who have no bona fide interest in the concern, who have not been deceived by the prospectus, and who have merely taken a few shares or secured the co-operation of one or more shareholders in order to create professional fees for themselves. The company wrecking lawyer and the public accountant does infinitely greater injury to the capitalist and involves him in infinitely greater loss than the most reckless promoter who has ever penned a prospectus—provided, of course, that the prospectus be not absolutely fraudulent, and that there is really a property to be disposed of. The reader of a prospectus has every opportunity of judging for himself whether the statements are exaggerated, because his common sense must tell him that if a business or a property be capable of yielding permanently 40 or 50 per cent. the owners of it would never dream of selling it for less than the present value of an annuity of the amount of the profits. If the estimated profits be of a temporary or prospective character the buyer has full power to verify the estimates, or if he purchase without verification he well knows the risk he is undertaking. In case of wrecking, the capitalist is in a totally different position, since he has nothing whatever to guide him as to whether shareholders are dissatisfied or whether the enterprise has merely been unfortunate enough to fall into the hands of professional wreckers.

The United Shepherds Wheel Nose appears to have been one of those unlucky concerns which has been selected for exploiting by the wrecking fraternity, for in the Supreme Court of Appeal on Tuesday there was a hearing of an appeal on behalf of a number of shareholders from the refusal of Mr. Justice Chitty to make a winding-up order. The ground of the application was that the company was a sham, and it was stated that the vendors had acquired the mining rights for 10s. and sold them for 25,000s. in cash and shares. It was also stated that the amount of capital subscribed was insufficient to carry on the work of the company. On behalf of the applicants it was also contended that the prospectus was fraudulent, and that untrue advertisements had been issued as to the state of the market as regards the Stock Exchange dealings in the shares. After the petition had been dismissed by Mr. Justice Chitty the majority of the shareholders elected to have a voluntary winding-up, which it is understood was simply with a view to reorganisation, and this will probably now be effected, for the Master of the Rolls, in the course of his judgment, said that there was no evidence that the prospectus was fraudulent. Even if it were, that was no ground for a winding-up, though some of the shareholders might have a right of action against the persons who issued the prospectus. The same remark applied to the advertisements, and the evidence was not clear as to the insufficiency of the capital. The only question was whether there really was a mine at all. Was the land traversed by workable lodes of lead? The evidence was clear that it was. Every mining adventure was to some extent a speculation. No doubt there was a conflict of testimony as to whether the mines were worth the expense of working, but that was not a sufficient ground for winding-up the company. Before Mr. Justice Chitty the petition was not supported by a majority of the shareholders. There had since been a voluntary winding-up, possibly partly on account of the petition, and possibly now some of the shareholders might prefer to have the winding-up done by the Court. But that did not give them a right to have it. The majority had elected to have a voluntary winding-up. If the majority wished for a supervision order or a compulsory winding-up they could ask for it. The order appealed from was rightly made. No fault of the liquidators had been shown, and there was no desire on their part to have assistance from the Court which they could not obtain on summons.

REGULATING DYNAMO-ELECTRIC MACHINES.

When an electrical current produced by a dynamo-electric machine is applied to perform several operations, such as working several electro-dynamic machines, or supplying several electric lights, it is subject to variation when some of these are brought into or thrown out of operations, and consequently those which are left in circuit are subjected to irregularity. To remedy this defect Messrs. WRIGHT and ORMISTON, of Warwick-street, Regent-street, have designed an improved regulator. Between two rollers caused to revolve in opposite directions they mount a third roller, which in its middle position is clear from both, but which can be moved a little laterally so as to be pressed against the one or the other, and so to be driven by frictional contact in the one direction or the other. This lateral movement of the middle roller is effected by connecting its axis to the core of a solenoid having its coil in a branch from the circuit that is to be regulated. The axis of the middle roller has on it a screw thread working a worm wheel or nut to which is attached a rotating or sliding spring that bears against a surface presenting pieces of conducting metal interspersed with insulating material. These pieces of metal are connected with electrical resistances of various magnitudes that are by the contact of the spring brought into the circuit of the field magnets of the producing machine.

The action of the machine will be very readily understood. If owing to the throwing out of action or bringing into action of one or more of the machines or lamps that are connected to the main circuit, or owing to other causes, the current becomes varied, then the core of the solenoid is caused by the alteration of the attractive force to move so as to bring the middle roller into contact with one or other of the two oppositely revolving rollers. The middle roller being thus caused to revolve, the screw thread upon its axis causes the spring to move over the surface above mentioned, which presents contacts for the resistances. A greater or less resistance is thus introduced into the circuit of the field magnets, and the production of electricity by the machine is thus decreased or increased as the case may be. By suitably proportioning a weight or spring arranged to counterpoise the attraction of the solenoid core, and employing suitably proportioned resistances, variations in the expenditure of electricity can by the use of the regulating apparatus be so far compensated by variations in its production, that the machines, lamps, or other objects in the circuit receive approximately uniform supplies of electricity.

The Belt Copper Mines (Limited).

Registered under the Companies Acts, 1862 to 1880.

CAPITAL £250,000, DIVIDED INTO 50,000 SHARES OF £5 EACH.

Of which 16,000 are to be allotted to the vendors, credited as fully paid up, and the balance 34,000 shares, are now offered for public subscription, payable as follows:—5s. per share on application, £2 5s. on allotment, and the balance in such calls as the directors may think fit, but no further call to be payable sooner than two months after date of allotment.

DIRECTORS.

The Right Hon. The EARL OF DENBIGH, 2, Cromwell Houses, S.W.
S. COXON, Esq., M.Inst.C.E., 23, Great George Street, Westminster, S.W.
K. H. JAMES, Esq. (Messrs. James and Shakspeare), 10, Austin Friars, E.C.
ARTHUR GEORGE KENDALL, Esq. (Messrs. H. Kendall and Sons), 12, Great Winchester Street, E.C.
MALCOLM LOW, Esq., J.P., 22, Roland Gardens, S.W.
JOHN SANDEMAN, Esq. (Messrs. Geo. G. Sandeman, Sons, and Co.), 20, St. Swithin's Lane, E.C.
E. WOLSELEY, Esq., 151, Cromwell Road, S.W.

With power to add to their number.

LOCAL DIRECTOR.

(In compliance with the Law of the State of Michigan)
ALFRED MEADS, Esq., Ontonagon, U.S.

BANKERS—Messrs. MARTIN & CO., Lombard Street, E.C.

BROKERS—Messrs. LAURENCE, SONS, & GARDNER, 3, Copthall Court, E.C.

SOLICITORS—Messrs. FRANCIS & JOHNSON, 22, Austin Friars, E.C.

SECRETARY—JULIAN SANDEMAN, Esq.

TEMPORARY OFFICES—62, PALACE CHAMBERS, WESTMINSTER, W.

One of the vendors will join the board after allotment of shares.

On the recommendation of the Royal School of Mines, Messrs. Bainbridge, Seymour, and Rathbone, mining engineers, were appointed to inspect and report on the Belt Copper Mines, and one of the directors, Mr. Coxon, M.Inst.C.E., was deputed to accompany Mr. Rathbone and personally inspect the property.

This company has been formed for the purpose of acquiring valuable native copper properties and mines known as the Penn, Bohemian, and Great Western, situated in Ontonagon county, State of Michigan, Lake Superior, consisting (as stated in the reports) of 3272 acres freehold land, which are sold as unencumbered by debt or royalty of any kind. The property covers an extent of over four miles on the great Lake Superior Copper Belt, which already furnishes about one quarter of the copper produce of the world, and on which is situated the Calumet and Hecla Mine, which according to the reports pays its shareholders annually over £400,000 sterling. Some of the important mines on the same mineral range are the Quincy, the Atlantic, Osceola, Franklin, Phoenix, and the first, as appears from the manager's report, has paid in dividends nearly \$3,000,000, the last dividend being at the rate of 41 per cent. per annum.

The Lake Superior Copper is pronounced to be chemically pure for practical purposes, leaving no residuum when dissolved in pure nitric acid, giving no precipitate when the solution is heated with ammonia, containing no trace of arsenic or other metal. For conductivity wire and cartridge metal it is preferable to most, and thus it always commands a ready market.

The Belt Copper Mines consist of two distinct properties: 1. The Great Western and Bohemian. 2. The Penn.

No. 1. The Great Western and Bohemian. These mines, which are purchased as a going concern, having an area of 1832 acres and an extent of 1½ mile on the Great Copper Belt which carries the celebrated well-defined and continuous native copper veins, yielding on the output more than 2 per cent. of pure copper. Its village, called Bohemia, is one of importance, and it is anticipated will very shortly be in direct railway communication with Chicago.

The reports testify that extensive surface developments have been carried out, and the mines are opened by numerous shafts and levels, the extraction and treatment of the ore awaiting merely the erection of modern machinery and appliances.

Mr. Ralston in his report states—

"That the mines proposed to be purchased are in the best situations on the mineral range, that when the necessary machinery and appliances for working are erected, nothing can prevent them from returning a much larger output than the Calumet and Hecla. The Belt has been proved to go down 2700 ft. in several mines, and improves in richness in depth. Several shafts to an average depth of over 200 ft. have been sunk near the base of the bluff, and connected with levels (from an inspection of which Mr. Ralston calculates) that there is a block of mineral of 4,000,000 tons in sight, but as shafts may be sunk at least 4000 ft. before the veins leave the property there will be many times the amount of mineral above-mentioned.

Fuel, timber, and water are abundant throughout the property, and its value for mining purposes is fully explained in the reports.

The want of railway communication and economical means of transport to and from the shipping ports on the Lake and lack of capital have hitherto impeded the full development of this property.

These difficulties the directors are advised will be removed—

In the first place by direct railway communication, not only with both shores of the lake, but also with Chicago by the Marquette, Houghton and Ontonagon Railway (which is nearly completed), as shown on the map, and the works on the unfinished portion of that line are being actively pushed on, and

In the second place, by supplying sufficient capital to this company to obtain machinery of the latest construction for rock drilling, crushing and washing, and other labour-saving appliances of all kinds, the cost of production will be reduced to the lowest point of economical working.

The situation of the veins carrying the native copper should admit of their being worked for some years from adit levels, and it is intended to erect machinery adequate to the extraction and treatment of about 200,000 tons annually, which, including the cost of the construction and equipment of 1½ mile of railway to carry the ore to the stamp mills to be erected on the river, will involve an expenditure of about £40,000. These works can probably be erected and the railway completed by 1st November next.

The usual and necessary houses for the workmen have been erected, and labour is readily obtainable.

It is calculated by the vendors that the present development of the property, assisted by the above-named expenditure of £40,000, for

machinery, should enable the company to extract and treat 180,000 to 200,000 tons of ore per annum, say:

Air compressors and power drills	£8000
1½ miles railway	3900
Rolling stock	4000
Stamp mills	25,000
	£40,000

To illustrate the actual expenses of mining and producing ingot copper in this district, the following figures are quoted from the annual reports of two neighbouring mines, viz., the Atlantic and the Quincy.

The Atlantic output is 169,000 tons (of 2000 lbs.) Mining, milling, smelting, and all expenses, \$407,933=£241, or £81,586=9s. 8½d. per ton.

The Quincy output is 126,000 tons (of 2000 lbs.) Mining, milling, smelting, and all expenses, \$505,344=£41, or £101,068=16s. per ton.

Owing to the completion of the railway connection to within 1½ mile of Property the company should work at even a cheaper rate than either of these mines, but assuming 16s. per ton for expenses the following would result from an output of only 100,000 tons (of 2000 lbs.) per annum. This with a product of 2 per cent. would give—

4,000,000 lbs. ingot copper at 18 cents per lb.	\$720,000, or £144,000
Deduct cost of mining, milling, smelting, administration, and all other expenses \$4, or 16s. per ton of ore	\$400,000, or £80,000
	£64,000

Which results are far below what are anticipated by the estimates of the engineers.

No. 2. The Penn. This is reported to be an extensive and very important property, six miles from Bohemia, having an area of 1440 acres, and a great extent on the Mineral Belt—viz., 20 miles. The reports show that the celebrated veins are continuous and well defined, and Mr. White, manager of the Quincy Mines, states that, "The property is large, and has a length of nearly three miles of veins, and a vein which has developed larger bodies of mineral for a greater length than any other which has been developed in the Lake Superior section." Timber is very abundant both for fuel and for mining purposes; there is also a plentiful and constant supply of water. The property lies near enough to Bohemia to be worked under the same management.

The directors of the company have reason to believe that if it be considered advisable this portion of the properties might be sold at such a price as would reduce the present cost of the mines without interfering in any way with the results estimated above. If, on the other hand, the directors feel encouraged to do so, they can, at some future period, develop this portion, and thus place the Belt Copper Mines in a position of greater importance with regard to extent and working.

It is thus shown that the Belt Copper Mines possess two distinct properties, each of them taken individually being of great value.

No. 1. The Great Western and Bohemian should yield a net income of say £64,000.

No. 2. The Penn can either be realised or can be developed as may hereafter seem desirable.

Prospectuses and reports on the properties comprising the Belt Copper mines can be had at the bankers, brokers, and the offices of the company.

The vendors sell as the absolute owners of the freehold to the company, and have fixed the price to be paid at £165,000, of which they agree to take at least £80,000 in shares credited as fully-paid up, and so much more in shares as will leave the company at least £75,000 working capital.

By the contract with the vendors it is provided that if shares in the company to the amount of £100,000 shall not be subscribed and be paid for in cash be responsible persons, the agreement with the vendors shall not be enforceable by them.

£100,000 of the capital has been guaranteed by a number of responsible persons (to whom a commission for so doing will be paid entirely by the vendors). Two of the directors are among the guarantors. The guarantors being numerous, a list of them with dates and names of parties may be seen at the offices of the company. Subscribers for shares will accept this as sufficient notice to comply with the statute on that behalf.

The contract for purchase, which is by deed, is dated 14th July, 1882, and is made between Francis Ellershausen, Esq., and A. B. Cunningham, Esq. (vendors), of the one part [who as vendors pay the preliminary and other expenses of the formation and incorporation of the company, and also all commissions, in connection with obtaining the capital, advertising, printing, or of any other description whatsoever, up to the time of allotment of shares, and in addition all expenses of conveyance of the property] and the Belt Copper Mines Company (Limited), of the other part.

The original reports and the contract for sale can be seen at the offices of the solicitors.

AIR AND GAS ENGINES.

Theoretically an almost unlimited supply of motive power ought to be obtainable at an almost nominal cost from the wind and the waves, yet owing perhaps to the abundance of mineral fuel at command and the utilisation of these forces of Nature is more neglected in this country than in many others, although there are many inventors who exercise their ingenuity in this direction, and although many thoroughly practical and economic suggestions have from time to time been made. The use of air as an auxiliary to gas, water, steam, &c., is, however, quite common; but, as a rule, very little advantage is obtained. The employment of gas-engines is often desirable, not because taken hour by hour they would be so economic as steam, but because the consumption of fuel continues only whilst the engine is at work, and the precise quantity of power, so long as it is below the maximum capacity of the engine can be produced. The manner in which air, gas, and similar engines are in many instances associated with each other, renders it somewhat difficult to separate them, and hence the Commissioners of Patents have very wisely had them all dealt with in one series—"Abridgements of Specifications relating to Air, Gas, and other Motive Power Engines." Part II. A.D. 1867-1876. London: Commissioners of Patents' Sale Department, Curstons-street, Chancery-lane—the volume referring to the inventions of the decade ending 1876, filling 923 pages, and conveying an enormous amount of information concerning the engines treated of. The series includes all varieties of motive power engines except steam-engines, hydraulic engines and motors, and electric and magnetic engines, and thus covers a very wide range of invention, although not all equally useful.

The main portion of the volume describes inventions for producing motive-power through the agency of air, gas, and all elastic fluids except steam by the expansion, contraction, generation, combustion, or explosion of any of these agents; also by the influence on machinery of currents of air artificially produced, or of the natural motion of the atmosphere. The other inventions comprised relate to projects for obtaining motive-power by various means and combinations of different forces, such as the elasticity of springs, force of gravitation, loss of equilibrium, use of floats or weights immersed in water or other liquid, ascension of receptacles inflated with air or gas under water, and different schemes, except hydraulic and magnetic, by which the attainment of perpetual motion has been attempted. Among the searchers for perpetual motion—or, as the abridger considerably calls it, self-sustaining and self-increasing motive-power—are many whose names are familiar to readers of the *Mining Journal*, such as Boutet, of Channel bridge celebrity, Jove, Ludeke, Gamboni, Cole and Acton, Borzecki, and others, but as the names of these lunatics occupy a couple of pages, it is unnecessary to remind the world of a larger number. It must not, however, be supposed that perpetual motion contrivances form more than a small fraction of the book, and moreover, the fact must not be lost sight of that in some of these impractical inventions new mechanical motions are introduced, which have been, and can be, turned to advantage by engineers and others whose brains are not disordered by attempting to perform impossibilities.

The air and steam engines and the air and water engines which have been invented during the decade are very numerous, and air compressing machinery and apparatus connected with it appears to have received much attention. The difficulty of classifying these inventions is beyond question, and, indeed, very strong evidence of the difficulty is obtained when the attempt is made to follow the progress of invention of air compressing machines intended for use for a particular purpose—as for propulsion or for the working of rock-drills; but at the same time it would be by no means easy to suggest a better classification than that adopted. There are the reservoirs for storing compressed air and gases, and means for regulating and distributing the flow of fluids from them; then the inventions for compressing air for motive purposes are subdivided according as the object is proposed to be effected by electro-magnets, by explosion, by heat, by injection, by mercury, by momentum, by pumps, by steam, by water power, by waves or rolling or pitching of a vessel, by weight, or by wind power.

The section described as air engines, worked by compressed air, appears to be a very comprehensive one, for it includes Firth and Hard's coal-cutting machine, Beaumont's air engine for tramcars, Gamboni's perpetual motion machine, or at least one of them, Tommasi's tramway locomotive, and many equally dissimilar inventions. Engines worked by atmospheric pressure form a separate class, and among the gas engines are many inventions which, although not hitherto recognised as successful, embody principles well worthy development. Rotary engines, another class of machine which offers a wide field for invention, require 34 pages to index what has been done in the 10 years, and the perusal of the abstracts can scarcely fail to suggest to the inventor the points wherein further improvements are necessary. The same may be said of windmills, and of the utilisation of waste vapour, steam, gases, or heat by applying it for motive-power purposes. The volume is altogether a very interesting one.

AIR COMPRESSOR WITH AUTOMATIC REVERSING GEAR.

In the air compressors forming the subject of the invention of Mr. C. A. MAYRHÖFER, electric engineer, of Paris, water under pressure is supplied to the compressor through a pipe and two cocks, a lever being so connected with these cocks that it holds the one closed and the other open—in the upper position of the lever the first is open and the second closed so that the water passes through the first, and a pipe to a water chamber or reservoir, the air in which is compressed by the water and forced into a safety apparatus through a valve or pipe. The safety apparatus contains a float standing on small feet. The air entering the safety apparatus surrounds the float and goes through a pipe to the cock of a high pressure air reservoir, entering when the lever attached to the cock is depressed. From this high pressure reservoir the air passes simultaneously through a pipe and cock which is likewise open when its lever is depressed, and allows the passage through it of the air, which now reaches a driving or service air reservoir through another pipe, and is delivered from the said service reservoir to the place where required through an outlet cock. On the upper cover of the water chamber is placed the reversing gear of a three-way cock; to this latter a small branch pipe leads from the pipe of the service reservoir, and the position of this three-way cock at the influx of the water is such that compressed air can pass from the service reservoir through it to a cylinder containing a piston which presses upwards the lever first above mentioned so as to hold the water inlet cock open and the water outlet cock closed.

When a float in the water chamber rises it lifts a rod which passes through a stuffing box in the cover, and raises one end of a horizontal lever high enough to tilt over a tumbling lever which operates the three-way cock, so as to close the passage of air from the service reservoir to the cylinder, and the air is released from the latter, whereby its lever which is loaded with a weight falls again so as to close the water inlet cock and open the water outlet cock. The water now flows out of the water vessel either to waste or to be applied to some other use. Whilst the water is flowing out of the water vessel, the latter fills itself again with air through a suction valve and a cock which is operated by the reversing gear of the tumbling lever. When the water has fallen in the water chamber sufficiently, the float therein draws down the before-mentioned rod and actuates therewith the before-mentioned reversing gear consisting of the horizontal and tumbling levers, thereby changing the position of the three-way cock. The connection between the air service reservoir and the cylinder is thereby restored, the compressed air enters the cylinder again, raises its lever, opens the water inlet cock, and closes the water outlet cock. The series of operations is then repeated, and so on.

The invention is, of course, capable of some modification. Instead of the two water cocks, an inlet and an outlet, a single cock, or a three-way cock may be employed; also instead of the lever for closing the cocks, tooth wheels and racks may be used, especially in cases of great pressure of water. The levers of the various cocks are loaded with weights for the purpose of balancing the friction of such cocks, also the pressure of the air for example, if it is desired to

store up air at two atmospheres in the high pressure reservoir (provided the pressure of the water is in excess of that pressure), the weight on the lever of the cock must be such that 2 kilos. per square centimetre of the bellows or piston in the cylinder which operates it maintains the equilibrium; if a higher pressure should arise the lever rises and the cock closes preventing further influx of air. Similarly as regards the cock for regulating the passage of air from the high pressure reservoir to the service chamber, its counter weight is balanced by a small pressure, and is raised by air coming from the service chamber and entering a cylinder as soon as the desired pressure is reached, which is determined by the balancing of the lever of the cock, whereby the further passage of air from the high pressure reservoir to the service chamber is prevented. The lever for actuating the water inlet and outlet cocks is either raised or depressed, according to the position of the reversing gear on the water chamber. A cock in the water supply pipe is closed immediately the pressure in the high pressure air reservoir has reached the desired maximum by means of a lever, immediately the air from the high pressure reservoir, entering a cylinder in connection with such lever, overcomes the resistance of the weight thereon.

The object of the safety apparatus is to prevent the entrance of water into the air pipe leading to the high pressure reservoir in the event of the reversing gear failing to act. In that case water passes over into the safety apparatus and raises the float therein, closing the entrance to the air pipe by a cone or valve. On the other hand the piston of a safety valve is raised and allows the overflow water to pass off by a pipe. This water flows into an open vessel, raises a float therein which acts upon the lever of the main water supply cock, whereby the latter is closed and the further influx of water stopped. This lever when raised is held up by a catch or latch. This apparatus for shutting off the supply of water also acts when water enters the open vessel from any other part of the apparatus, which is placed so that any outflowing water always runs into the said open vessel. An electric contact is arranged to give notice immediately the main water supply is thus shut off. The apparatus is furnished with suitable pressure gauges where necessary.

HERODSFOT SILVER-LEAD MINE.

This property is in the parish of St. Keyne, about four miles from Liskeard, Cornwall. The mine has proved very rich and profitable, the lead ore having sold as high as 35 $\frac{1}{2}$ per ton, owing to its richness for silver. Upon an outlay of £7000, the shareholders received 80,000 $\frac{1}{2}$ in dividends, and in the past working shares rose to 52 $\frac{1}{2}$ each. The property was allowed through various causes and neglect, to get into a very dilapidated condition, and through the death of one of the largest holders it was eventually sold in 1879 for 3000 $\frac{1}{2}$ as a going concern. A considerable sum of money was required to put all things in thorough working order. The mine is now in 12,000 shares, upon which 16s. per share has been called up. The present prospects of the mine are good—in fact, there is not a single lead mine in Cornwall or Devon holding out such excellent prospects, more especially if the price of the shares is taken into consideration. For a mere nominal price the shares can be had, and if the reports upon the property are reliable (and the present sales of ore warrant them to be so) the shares are certainly cheap at 16s. per share, still they can be had for nearly as many pence. They are now selling 90 tons of ore every two months, and the richest quality realised 15 $\frac{1}{2}$ 10s. to 16 $\frac{1}{2}$ 10s. per ton. They have sold some 14,000 $\frac{1}{2}$ worth of ore since the present working commenced. Monthly sales will increase.

Shareholders in lead mines must bear in mind lead is very low in price, and a rise may, and no doubt will, take place; therefore, low-priced shares in good lead mines are worth picking up. In 1879 the tin standard was 50 $\frac{1}{2}$. The cry was Cornish tin mines will all shut up. What has been the result? Tin is now over 100 $\frac{1}{2}$, and Cornish tin mines have risen from 50 to 1000 and 1500 per cent. in value excluding dividends. Lead shares will, no doubt, have a rise, but not to such a great extent.

Herodsfot paid 80,000 $\frac{1}{2}$ in dividends from the south part of the mine down to the 255 ft. level. The 215 ft. level is now rich for 40 fms. long, and the shaft is going down for the 225 ft. level. In the north part the mine was very rich, but nothing is done here below the 127 ft. level—a most important feature, for at least 90 fms. in depth and an immense length, judging from the south part. The machinery and buildings as they stand cost some £15,000.

CARNARVONSHIRE GREAT CONSOLS.—A telegram from this mine announces the cutting of a large vein in the deepest level. The lode is 6 ft. wide, producing good lead. This is a most important discovery, and will doubtless greatly enhance the reserves of ore in the mine.

RE-STARTING OF MINES IN CLEVELAND.—The Liverstone ironstone mines, which have been laid off work nearly five years, will re-commence operations in a fortnight by the Cargo Fleet Iron Company, who have purchased the property. The restarting of these mines will be of great benefit of the Loftus district.

EXHIBITION AWARD TO THE STEEL COMPANY OF SCOTLAND.—An official announcement has been made to the Steel Company of Scotland to the effect that they have been awarded a gold medal in consideration of their very fine collection of steel manufactures, regarding which the leading colonial newspapers have spoken in terms of the highest praise. Amongst the objects exhibited there are forgings, castings, and rolled samples in great variety, and they are all specimens of Siemens' steel as manufactured at the company's works at Newton and Blochairn. They illustrate the properties for which this material is in so much request by shipbuilders, mechanical engineers, civil engineers, &c. In response to a special request made on behalf of one of the colonial technical colleges it is intended to allow this interesting collection of exhibits to remain in New Zealand.

GREAT WESTERN RAILWAY TO SOUTHAMPTON.—Some short time back the new line from Didcot to Newbury was opened, and the shareholders of the Great Western Railway Company will learn with pleasure the great success which has been obtained before the House of Lords Committee this week in the passing of the bill for the extension of the Great Western service to Southampton, which will no doubt prove a source of great profit to this company in conveying the traffic direct through from the north and north-west of England—from Liverpool, Birkenhead, Chester, Raabon (coal district), Shrewsbury, Wales (different parts), Wolverhampton, Birmingham, Leamington, Oxford, Banbury, and also the West of England, including Bristol, Bath, &c. The importance of this service to these several places cannot be over-estimated.

UNITED MEXICAN.—The extraordinary general meeting of proprietors, convened for yesterday, for the purpose of making a call of 2s. 6d. per share, stands adjourned to this day, at one o'clock, in consequence of a quorum of shareholders not being present, in accordance with the Articles of Association.

BOMBARDMENT OF ALEXANDRIA.—Two admirably finished maps, the one of Egypt and the other of Alexandria with its fortifications, were issued yesterday by Mr. James Wyld, Geographer to the Queen, of Charing Cross, and considering the matters at present going on in Egypt they will be generally interesting. The scale of the first, about 10 miles to the inch, is ample to allow every place of interest to be readily found, whilst that of Alexandria being on the scale of 3 in. to the mile will permit of every detail given by correspondents on the spot being readily followed.

ESTABLISHED NEARLY FIFTY YEARS.

THE MINING JOURNAL,
RAILWAY AND COMMERCIAL GAZETTE
Has the
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MI JOURNAL OFFICE, 26, FLEET STREET; AND TO BE HAD OF ALL BOOKSELLERS AND NEWSAGENTS.

A PRACTICAL and EXPERIENCED MINING ENGINEER, having had several years experience in Spain, will become **DISENGAGED** towards the close of next month, and desires an **APPOINTMENT as MINE MANAGER.** Good testimonials. Address, "H. B., Minas de Calcano, Por Mores, Provincia de Zaragoza, Spain.

EXPLOSIONS IN COLLIERIES PREVENTED by Advertiser's Invention—a most practical and inexpensive process. For particulars and terms please address, **HEINRICH NOLTE**, Mulheim an der Ruhr, Prussia, Germany.

THE COTEHELE COMPANY (LIMITED).—SHARES in this very promising **ARSENICAL PYRITES and COPPER MINE FOR SALE** at 12s. 6d. a share. Fully paid shares. Apply to Messrs. T. and J. STANT, Calstock, Tavistock.

TO CLERKS, MANAGERS, FOREMEN, or OTHERS in contact with bodies of workmen, or in any position, enabling them to **FORM WATCH and CLOCK CLUBS.** Advantageous to Conductors of Club, and still more so to Members. Stationery, Books, Rules, Cards, Circulars, &c., all free of charge. Address, "Watch Warehouse," 58, Cambridge-street, Birmingham.

ARIZONA ORES. A **GENTLEMAN**, lately returned from the United States, would like to **DISPOSE OF a HANDSOME COLLECTION OF ASSAYED TYPE SPECIMENS OF ORES** from Southern Arizona and Mexico. Address, **STEPHEN RICKARD**, Downham Villa, Forest Hill, S.E.

NEW TERRAS TIN MINING COMPANY (LIMITED). Those who are desirous of **INVESTING HEREIN** should apply at once to the Associated Mineowners' Corporation, Grampound-road, Cornwall.

RAILS for SIDINGS, TRAMWAYS, &c., with all fittings complete. All sections, from 10 to 80 lbs. per yard. Shippers enquiries promptly attended to. Apply to **G. BRADSHAW**, 22, Cooper-street, Manchester.

AUSTRALIAN GOLD SYNDICATE.—Gentlemen of position and influence desirous of associating themselves with legitimate and profitable **GOLD MINING and LAND INVESTMENT**, and who are prepared to invest capital, can have a genuine proposal submitted to them on application to **Mr. THOMAS CORNISH**, Consulting Mining Engineer, 81, Fenchurch-street, London, E.C.

THE AUSTRALIAN MINING COMPANY.—(Incorporated by Royal Charter.) Notice is hereby given, that the **THIRTY-SEVENTH ANNUAL GENERAL MEETING** of the Shareholders of this company will be **Held at the Guildhall Tavern, No. 32, Gresham-street, E.C., on MONDAY, the 31st instant, at One o'clock P.M., precisely.** To receive the report, accounts, and balance-sheet for the past year. To elect directors in lieu of Alderman Sir Charles Whetham and Frederick Collier, Esq., who retire by rotation, and offer themselves for re-election. To fix the remuneration of the auditors for the past year. To elect auditors for the present year.

By Order, **U. F. HARRIS**, Secretary. The Transfer Books will be closed from the 15th to the 31st instant, both days inclusive. No. 1, Coleman-street Buildings, Moorgate-street, E.C., 14th July, 1882.

JOSEPH TOMS, STOCK AND SHARE DEALER, 48, BISHOPSGATE STREET WITHIN. Recommends for a rise New Trumpet Consols (Tin), Great Holway, Condy Fedw, and Sinclair (Lead) shares.

MR. JOHN RISLEY, STOCK AND SHARE BROKER, 38, CORNHILL, LONDON, E.C. ESTABLISHED TWENTY YEARS. BANKERS: LONDON AND WESTMINSTER, Lothbury.

MR. W. MARLBOROUGH, STOCK AND SHARE DEALER, 29, BISHOPSGATE STREET, LONDON, E.C. (Established 30 Years) Can sell the following **SHARES** at prices annexed:—
40 Bedford Unit., 35s. 30 Indian Phoenix, 1 10s. 10 Richmond, £8.
40 Bradford Cop., £1 10 75 I.X.L., 2s. 6d. 40 South Devon, 15s.
50 Colmanian Gold, 10s. 40 Indian Consol., 16s 3 40 Sortridge Con., 4s. 6
40 Carnarvon Cop., 11s 20 Killifreth, £5 17s. 6d. 5 South Caradon, £12.
40 Chile Gold, 12s. 20 Leadhills, £2 6s. 3d. 5 Tankerville, 5s. 6d.
75 Caliao Bis, 8s. 9d. 10 Lovell Tin, off. wtd. 10 West Kitty, £10 2s. 6d.
75 Dev. Friendship, 5s. 50 La Plata, £1 15s. 40 West Crebor, 13s. 3d.
25 Devala Moyer, £1 1s 6 25 Mona Consols, 20s. 50 West Lisburne, 17s. 6d.
50 Eberhardt, 11s. 6d. 75 Nouveau Monde, 8s 6 50 West Devon, 7s.
40 East Blue Hills, 10s. 6 40 Organos Gold. 50 West Caradon, 5s. 6d.
100 Exchequer, 3s. 3d. 50 F. of Wales, 8s. 6d. 5 Wheel Basset, £10.
30 Hington Down, 16s 3 50 Fairs Corp., 9s. 20 Wheel Crebor, £2 18 9
20 Rhodes Reef, 17s.

WANTED.—50 or 100 East Caradon and Organos Gold. Shares in Home, Foreign, and Colonial mines, bought and sold at net market prices, free of commission. Purchases for forward delivery at special prices on receipt of deposit of 20 per cent. **SPECIAL BUSINESS** in Indian gold mines, also in rails, trams, Egypt, Ottoman Banks, Turks, and Lombards, for cash or account on receipt of usual cover. BANKERS: ALLIANCE BANK (Limited).

MR. GEORGE BUDGE, STOCK AND SHARE DEALER 9, GRACECHURCH STREET, LONDON, E.C. (Established 29 years) **ALL BUSINESS TRANSACTED FREE OF ANY CHARGE FOR COMMISSION.**

Notice to Investors and Speculators. Mr. BUDGE has DEALINGS in—
100 Almada. 50 Goodevere. 65 Parys Copper.
50 Bedford United. 15 Goginan. 150 Pasterena.
100 Chontales. 100 Hoover Hill. 50 South Indian.
70 Caliao Bis. 25 Hington Down. 20 South Devon.
2 Carn Brea. 50 Indian Phoenix. 50 South Fenchurch.
50 Devon Friendship. 100 Java. 20 South Fenchurch.
50 Don Pedro. 60 Kit Hill. 100 Tolima.
2 Dolcoath. 100 Kapanga. 5 West Kitty.
100 Eberhardt. 20 Lead Hills. 30 West Phoenix.
100 East Blue Hills. 50 Last Chance. 70 West Polbrean.
50 East Caradon. New West Caradon. 40 West Godolphin.
10 Frongoch. 20 New Kitty. 25 West Crebor.
50 Gawton. 30 Okel Tor. 20 Wheel Coates.
60 Glenroy. 70 Polrose. 100 Wheel Jewell.
100 Gold Coast. 100 Prince of Wales. 20 Wheel Ury.
SPECIAL BUSINESS in Trevaunance, Wheel Agar, West Kitty, Penhalls, New Kitty, Parys Copper, Frongoch, Dolcoath, Gawton, and Bedford United.

FOR SALE, FOR CASH:—
50 Akankoo, 7s. 6d. 50 English & Australian 100 Exchequer, 2s. 9d.
50 Bratsberg, £1 1/2. Copper, £1 2s. 9d. 50 Gold Coast, £1 2s.
25 Bedford United, 50 English-Australian 100 I. X. L., 2s. 9d.
£2 16s. 6d. Gold, 7s. 9d. 100 Prince of Wales, 7s 3d
Address, J. DOWSON, 8, Bonner-road, Victoria Park, London, E.

CAPTAIN ABASALOM FRANCIS, M.E., GOGINAN, ABERYSTWYTH

Date.	Mines.	Tons.	Price per ton.	Purchasers.
July 3	Prince Patrick	21	9 15 0	Walker, Parker, & Co.
4	D'Ereshy Mountain	20	9 1 6	ditto
8	Foxdale	100	11 14 0	Adam Eytton.
11	ditto	100	9 15 0	Panther Lead Co.
—	Lisburne	60	10 9 0	Weston, Son, and Co.
—	ditto	34	11 2 6	Alexander Ferguson.
—	Cwmystwyth	20	8 12 0	Weston, Son, and Co.
—	East Darren	15	12 4 0	ditto
—	United Van and Glyn	25	8 18 0	Nevill, Druce, and Co.
13	Talargoch	—	—	—
—	Mesyrerwddu	40	9 16 6	Walker, Parker, & Co.
—	ditto	40	9 16 6	ditto
—	Coetia Llys	10	10 7 6	ditto
—	North Heudre	50	9 11 6	Quirk, Barton, and Co.
—	ditto	50	9 11 6	Walker, Parker, & Co.
—	ditto	20	12 10 0	Quirk, Barton, and Co.
—	Rhosesmor	40	9 12 6	Adam Eytton.
—	ditto	40	9 5 6	ditto
—	East Long Nake	4	9 5 6	Walker, Parker, & Co.
—	ditto	4	9 5 6	Adam Eytton.
—	Speedwell	6	9 1 6	ditto
—	Coetia Mawr	6	9 1 6	ditto

Date.	Mines.	Tons.	Price per ton.	Purchasers.
July 12	Talargoch	252	£ 3 12 6	J. F. Kimmel.
—	ditto	30	1 0 0	Dillwyn and Co.
13	Asheton United	50	2 9 6	Vivian and Sons.

RIO MALAGON SULPHUR, COPPER, AND SILVER MINES (Limited). A petition for winding-up the company formed for working this property has been presented to the Court of Chancery.

THE PEPPER MILL BRASS FOUNDRY COMPANY
OF WIGAN,
Are EXHIBITORS of COLLIERY SPECIALTIES at the EXHIBITION in the ALEXANDRA PALACE, NORTH LONDON, which OPENED on the 26th inst.
No. of Stand, 126, in the East Side of the Building.

SUMMER TOURS IN SCOTLAND.

GLASGOW AND THE HIGHLANDS.
ROYAL ROUTE VIA CRINAN AND CALEDONIAN CANALS. Royal Mail Steamer COLUMBA for IONA, from GLASGOW daily at Seven A.M., and from GREENOCK at Nine A.M., conveying, in connection with his West Highland Steamers, PASSENGERS for OBAN, FORT WILLIAM, INVERNESS, LOCHABE, SKYE, GAIRLOCH, STAFFA, IONA, GLENCOE, ISLAY, STORNEYWAY, &c.
Official Guide, 3d.; Illustrated, 6d. and 1s. by post: or at W. H. Smith and Son's Railway Bookstalls.
Time Bill, with Map and Fares, free from the Owner, DAVID MACBRAYNE, 119, Hope-street, Glasgow.

THE RARA FORTUNA SILVER MINING COMPANY (LIMITED).
At a meeting of the directors of the Rara Fortuna Silver Mining Company (Limited) held on Tuesday, the 4th day of July, it was resolved that a DIVIDEND of ONE SHILLING PER SHARE, PAYABLE on and after July 15 be declared, being at the rate of 10 per cent. per annum, less income tax, for the half-year ending 30th June, 1882.

The books of the company will be closed for transfers from Monday 10th to Monday 17th inst. inclusive.
J. VINCENT BARBER, Secretary.
5, Austin Friars, London, E.C., July 4, 1882.

MINE "EL CALLAO."
GUAYANA, VENEZUELA.
COUPONS OF SHARES 322
Gold in bars produced in the month of May, 1882, and remitted to Messrs. Baring Brothers and Co., London, 6876 46 ozs.
DIVIDEND distributed for each coupon, \$200.
(Signed) A. LICIONI, President.
(Signed) G. BARNEWITZ, Treasurer.

THE SOUBACK AND CATIR ALAN MINING COMPANY (LIMITED).
The INTEREST to the 30th of June on the 8 per cent. debentures is NOW BEING PAID. The Coupons must be left at the company's offices three days for examination.
Mr. AUSTIN has provided samples taken by him from the mine, which have been assayed by Mr. F. CLAUDET.

(COPY.)
Fred. Claudet, Assayer to the Bank of England.
Assay Office and Laboratory, 6 and 7, Coleman-street, London, E.C., July 5th, 1882.

To the Souback and Catir Alan Mining Company, 125, Palmerston Buildings.
I have examined the three samples received on the 3rd instant, and find the following to be the result:—

No.	Sample	Lead	...	...	...	Ozs.	dwt.	grs.	per ton of ore
No. 1—Flat Piece.	(By analysis)—Lead	...	...	...	...	28	28	28	per cent.
	Silver	...	...	...	...	10	875	3552	10 0
	Gold	...	...	...	...	163	53	18	0
No. 2—Thick Piece.	(By analysis)—Lead	...	...	...	...	22	53	3982	2 0
	Silver	...	...	...	...	9	435	282	11 8
	Gold	...	...	...	...	865	166	12	0
No. 3—Powder.	(By analysis)—Lead	...	...	...	...	35	50	1528	16 0
	Silver	...	...	...	...	4	68	166	12 0
	Gold	...	...	...	...	51	166	12	0

(Signed) FRED. CLAUDET.

NEW TERRAS TIN MINING COMPANY (LIMITED).
OPINIONS OF THE LOCAL PRESS.
The "West Briton and Cornwall Advertiser," June 22nd, 1882.
We believe it is the firm conviction of every miner in the neighbourhood who knows the property that if economically worked this mine will soon become a valuable and profitable concern. No mine could be more cheaply worked. The chief portion of the tin returned during the last working was from an open cutting, from which the stuff was trammed to the stamps, and the tinstone is estimated to produce from 15 to 20 lbs. of tin to the ton of stuff, and a practically unlimited quantity of this tinny elvan, mostly of a soft nature, remains to be taken away. Capt. Rickard, who was formerly an agent of the mine, says, "The best answer as to the value of the elvan is that over 47000 worth of tin was raised and sold in a little over two years, and this in the face of many difficulties, the entire laying out of the mine, and the erection of machinery, &c." So far as we can judge this is a legitimate and honest adventure in a concern which has excellent prospects.

"Western Morning News," June 26, 1882.
The New Terras Tin Mining Company has been started with a capital of £25,000 in £2 shares, on mutual terms for the re-working of the old and well-known Terras Mine, an extensive property in the St. Austell district, which, it is said, has returned fully £20,000,000 worth of metallic ore. It is regarded as one of the best mining properties in the West of England and it is proposed to erect plant which will be capable of returning 50 tons of ore per month, which at a profit of £25 a ton, it is estimated will give £15,000 a year, or over 50 per cent. per annum on the entire capital. The mine has been very favourably reported on by competent authorities.

"Western Daily Mercury," June 27, 1882.
THE NEW TERRAS TIN MINING COMPANY (LIMITED).—The property is acknowledged by practical miners in the county, who are well aware of its vast riches, to be one of the best they ever knew. The mineral in the mine is very rich and easily worked. Everything is to be done to work the mine as economically as possible, and the principal movers in the matter in dispensing with a London office and an expensive board of directors—two of the chief items in connection with several concerns that have been floated in Cornwall on the Limited Liability principle—show that they are desirous of avoiding all unnecessary expenses.

ENGLISH INVESTMENTS IN AMERICAN MINES

J. TROWBRIDGE BAILEY,
MINING ENGINEER AND EXPERT.
Member American Institute Mining Engineers.

Detailed and Accurate Reports furnished upon Gold, Silver, Copper, Coal, Properties, Mill Enterprises, &c., in Colorado, New Mexico, and the Central Mining Districts of the United States. Titles examined, Maps constructed, and Reliable Information of any nature concerning Mining Interests furnished promptly.

A List of English and American References of high character can be obtained from Messrs. MARCUS WARD and Co., No. 68, Chandos-street, London; or MINING JOURNAL Office.

All communications for Mr. BAILEY should be mailed to—

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MINING AND CIVIL ENGINEER
OF BERNALILLO, NEW MEXICO, U.S. OF AMERICA.

May be temporarily addressed—P. O., Box 1740, New York.

Has 24 years' experience in Mining and Smelting, and 10 years experience of American Business and Law, offers his services at moderate charges for Reporting on Mining and other Property in any of the above-named States or Territories gives correct, safe, and responsible advice as to securing full titles and possession and, as to best mode of utilising the property, will assist in settling existing difficulties by compromise, and in disposing of developed mining property when held at real value. Offers his assistance for securing undeveloped mining properties at home prices. As to care taken in reporting, reference is made to the Mining Journal Supplement, April 1, 1876, containing a report on property of the Maxwell Land Grant and Railway Company; as to technical standing, to the prominent men of the trade—compare Mining Journal of Aug. 30 and Nov. 31, 1872, and New York Engineering and Mining Journal, Feb. 28, 1874.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Devon.

IN the MATTER of the COMPANIES ACTS, 1862 to 1880, and of the LADY BERTHA UNITED COPPER AND TIN MINING COMPANY (LIMITED).
By an Order made by His Honor, the Vice-Warden of the Stannaries, in the said Matter, dated the 3rd day of July instant, on the Petition of GEORGE BERRIDGE and HENRY SALMON, trading as "George Berridge and Company," of Upper Thames-street, London, Printers, claiming to be Creditors of the above-named company, IT WAS ORDERED that the SAID COMPANY be WOUND-UP by the Court, under the provisions of the Companies Act, 1862.
FREDERICK MARSHALL, Registrar.
F. HEARLE COCK, Solicitor, Truro.
(Agent for Messrs. Snell, Son, and Greenip, 1, George-street, Mansion House, London, Petitioner's Solicitors.)
Dated Registrar's Office, Truro, this 12th day of July, 1882.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Cornwall.

IN the MATTER of the COMPANIES ACTS, 1862 and 1867, and of the PENHALE and BARTON UNITED MINES (LIMITED).
All CREDITORS or CLAIMANTS of the above-named company, claiming to be statutorily entitled to be paid in priority to the ordinary debts of the said company, and whose claims have not been already admitted, are hereby required to COME IN and PROVE their several DEBTS or CLAIMS at the Registrar's office, Truro, on Saturday, the 22nd day of July instant, at Eleven o'clock in the forenoon; or, in default thereof, they will be EXCLUDED from the BENEFIT of any DISTRIBUTION made before such proof.
And for the purpose of such proof they are either to attend in person, or by their solicitors or competent agents, at the time and place above mentioned.
FREDERICK MARSHALL, Registrar.
Dated Registrar's Office, Truro, the 13th day of July, 1882.

CORNWALL.

EXTENSIVE AND VALUABLE MINING SETTS, MACHINERY, AND MATERIALS, in the Parish of Uny Lelant, FOR SALE.

MR. A. BERRYMAN (Auctioneer) has been instructed to OFFER FOR SALE, BY AUCTION, on the Mine, on Friday, the 21st July instant, at noon, as a going concern, the Important MINING SETTS of the well-known Mines called

WHEEL SISTERS.

Situate in the parish of Uny Lelant, Cornwall, together with all the excellent MACHINERY, PLANT, and MATERIALS thereon, comprising—
1 60 inch cylinder PUMPING ENGINE, 10 feet stroke in cylinder, and 9 feet stroke in shaft, with 3 boilers, 11 tons each.
1 40 inch cylinder PUMPING ENGINE, 10 feet stroke in cylinder, and 9 feet stroke in shaft, with 2 boilers, 11 tons each.
1 28 inch cylinder PUMPING ENGINE, 6 feet stroke, equal beam, with 1 boiler, 8 1/2 tons.
1 36 inch cylinder PUMPING and STAMPING ENGINE, with 2 boilers, 11 and 7 tons, and 32 heads of stamps.
1 20 inch cylinder PUMPING ENGINE, 8 ft. stroke, equal beam, with 1 boiler, 9 tons.
1 30 inch STAMPING ENGINE, with 32 heads of stamps, complete.
1 24 inch WINDING ENGINE, with 1 boiler, 7 tons.
1 ditto ditto ditto 10 tons.
1 ditto ditto ditto 7 tons.
1 24 inch STAMPING ENGINE, with 1 boiler, 10 tons, and 20 heads of stamps, complete.
1 20 inch cylinder WHIM ENGINE, with 1 boiler, 8 tons.
1 ditto ditto ditto 7 tons.
1 ditto ditto ditto 10 tons.
1 spare boiler.

Upwards of 1100 fms. of PITWORK of various sizes from 14 inches to 6 inches. 1300 fathoms of 3/4 inch STEEL WIRE ROPE; wood rods, 700 fathoms, from 12 inches to 8 inches square.
Round buddles, frames, kieves, shafting, smith and miners' tools, skips, kibles, chain, weightbridge, with every requisite necessary for a large mine in full working order.

These sets have been worked with a view to opening up a large and important area of rich mineral ground, and establishing, on a sound basis, a permanent dividend-paying mining property.

The prospects of the Mine are very encouraging, but it is felt that for carrying on these extensive Mines more satisfactorily a larger number of shareholders than the present might be introduced under the auspices of a Limited Liability Company, which the lords have assented to, on conditions which may be ascertained. The Mines are open to inspection daily.

For further information and particulars, apply to Capt. WILLIAM ROSEWARNE, on the Mine; Mr. T. W. FIELD, the Purser, Marazion, Cornwall; or of the Auctioneer, Clarence-street, Penzance.
Dated 5th July, 1882.

BY ORDER OF THE MORTGAGEES.

MERTHYR TYDFIL, GLAMORGANSHIRE.

MOST VALUABLE FREEHOLD AND LEASEHOLD PROPERTIES,

KNOWN AS THE

PLYMOUTH COLLIERIES AND IRONWORKS.

Situate in the parish of Merthyr Tydfil, about 24 miles from Cardiff and 36 miles from Swansea, comprising an area approaching 2400 acres, with a large extent of superior Smokeless Steam Coal, well known as the Hills, Plymouth, and Merthyr Coal. The Collieries are intersected by the Taff Vale Railway, having excellent sidings and approaches thereto. Thus the works are brought into direct communication with the principal shipping ports of Cardiff, Newport, Swansea, and Birkenhead, and all the railway systems in the kingdom. The Buildings and works generally are very extensive, and the internal and other connecting tramways, which are many miles in extent, are admirably arranged for the economical transit of the coals on to the Great Western Railway. The principal seams of coal, well known as the Yard, Four-foot, Six-foot, Nine-foot, Lower-yard, Seven-foot and Lower Four-foot, are of the best quality, and on the lists of the English, French, Italian, and Spanish Governments, and besides the several qualities are in great demand among the Atlantic and Continental Steamship Companies. This portion of the estate presents, therefore, the most advantageous opportunities for profitable working, and is capable of yielding a large additional output and for many years at comparatively trifling increased cost the whole of the unworked coal, &c., estimated at 46,000,000 tons. The Plymouth Blast Furnaces, five in number, the Pontrebeck Mills, Puddling Furnaces, and Daffryn Blast Furnaces, five in number, are likewise of great extent and readily adaptable to steel production, and the undeveloped beds of iron ore are considerable, while the ports of Swansea, Cardiff, and Newport, afford great facilities for obtaining the Spanish ore. There is excellent fire-clay, and every necessary appliance for developing and working a large trade in this important branch, with extensive Limestone Quarries. In addition to a superior residence for the manager, there are 12 other dwelling-houses for agents, eight farm-houses, and 293 cottages, conveniently placed on the property. At Cardiff, in Dumball's-road, a valuable Dock, with extensive stores, on the Glamorganshire Canal, and in the Forest of Dean, Gloucestershire, the Box Bush Iron Mine at Coleford, in the parish of Newland, with rights of mining, &c.

MESSRS. FAREBROTHER, ELLIS, CLARK, AND CO. are instructed by the Mortgagees to OFFER FOR SALE, BY AUCTION, at the Mart, Tokenhouse-yard, in the City of London, on Wednesday, 16th August, at Two o'clock (unless previously disposed of by Private Treaty), in One Lot, the above IMPORTANT COLLIERIES AND IRONWORKS, as going concerns, including all TRAM ROADS, MACHINERY, PLANT, FURNACES, MILL FORGES, FIXTURES, ENGINES, MATERIALS, VEHICLES, TOOLS, IMPLEMENTS, and all LINE and DEAD STOCK, with possession.

May be viewed, and particulars may be had of Messrs. HOLLAMS, SON, and COWARD, Mining-lane, E.C.; at the Castle Inn, Merthyr Tydfil; the Royal Hotel, Cardiff; King's Head, Newport; the Mackintosh Arms, Swansea; at the Mart, E.C.; and of Messrs. FAREBROTHER, ELLIS, CLARK, and Co., 5 and 6, Lancaster-place, Strand, W.C., and 18, Old Broad-street, E.C.

HAWKSTON CHINA-CLAY COMPANY (LIMITED).

TO BE SOLD, BY TENDER, in One Lot, as a going concern, with the approval of Mr. Justice CHITTY, and subject to the approval of the landlord and to conditions, the
MINING LICENSE, PLANT, MACHINERY, and TENANT'S FIXTURES, Consisting of PUMPING and WINDING WHEELS, 400 feet WIRE ROPE, and other MINING PLANT, together with about 70 tons of dry and 60 tons of wet china-clay on the premises, situate at Hawkston, Bilsland, Cornwall.
The works, machinery, and effects can be inspected upon application on the premises.

Tenders to be sent in on or before the 18th day of July instant to Mr. WILLIAM FEWINS, of Sticklepath, Okehampton, in the county of Devon, Auctioneer, who will produce the license for inspection.
In case No Tender shall be accepted, the Mining License, Plant, Machinery, China-clay, &c., will be Sold, by Public Auction, by Mr. FEWINS, on Wednesday, the 2nd August, 1882, at Two o'clock in the afternoon, on the Company's Premises, at Hawkston, Bilsland.

The Official Liquidator does not bind himself to accept the highest or any Tenders.
Particulars and conditions of sale can be obtained gratis of the Official Liquidator, Mr. HERBERT ERNEST MATHEW DAVIES, of No. 3, Queen-street, Cheap-side, London; of Messrs. TIBBETT and SON, 1, Field-court, Gray's-inn, London, Solicitors; and of the Auctioneer.

Dated this 4th day of July, 1882. JOHN WM. HAWKINS, Chief Clerk.

TO BE LET, UNDER LEASE, or WILL BE SOLD, an excellent FREESTONE QUARRY, situate at Garth, about one mile from Trevor Station on the Ruabon and Llangollen Railway.

For particulars, apply to Mr. T. JONES, Crociolyn, Garth, Ruabon.

FOR SALE, a 30 H.P. PORTABLE STEAM ENGINE; with link-motion reversing gear, has drum and gearing complete for winding and pumping.

A 14 H.P. PORTABLE WINDING and PUMPING ENGINE.
Also a 6 H.P. PORTABLE HOISTING ENGINE.
Apply to—
BARROWS AND STEWART, ENGINEERS, BANBURY.

TO BE ADJUDGED, in the Offices of M. CARRE, Notary Place des Petites-Pères, Paris, on 29th July, 1882 (reserve price reduced), the PROPERTY of the

COMPAGNIE DES MINES DE FER MAGNETIQUE,

At Collo, in Algeria. Upset price, 200,000 frs.

Apply for particulars to M. EDMOND MOREAU, Avocat and Judicial Liquidator 22, Rue du Pont-Neuf, Paris.

SALE OF MINES.

ON MONDAY, 21ST AUGUST, 1882, at Ten A.M., before the Tribunal of Pellanza (Lago Maggiore, Italy), there will be OFFERED FOR SALE, BY PUBLIC AUCTION, amongst other Properties, the following MINES, &c., belonging to the Bankrupt Estate of Signor GIOVANNI FRANZI, of Pellanza:—
LOT 12.—A COPPER MINE, producing other Minerals, with Land, Buildings, and Machinery, in the Commune of Cardiglione Chiavere (Genoverato), in the region of Casali, for 20,000 Italian Lire.

LOT 19.—A LEAD MINE, called "Peel," in the Communes of Brovello, Mesino, and Graglia Riana (Province of Novara), for 2000 Italian Lire.
LOT 20.—THREE-TWELFTHS of the GOLD MINE, called "Cauderon," in the Communes of Vanzone and St. Carlo, Ossola, near Pestarena (Province of Novara), for 7500 Italian Lire.
Conditions of sale can be obtained from the Chancellor of the Tribunal of Pellanza, or of the Syndicate of the said Estate.
Pellanza, July 1, 1882.

TO BE SOLD, BY PRIVATE TENDER, the EQUITY of REDEMPTION of the VALUABLE FREEHOLD MINES and PREMISES, known as the

TRIMLEY HALL LIME WORKS and CAERGWRLE SAND QUARRIES.

Situate in the parishes of Hope and Rhanberfedd, in the county of FLINT; together with the FARM, FARM BUILDINGS, HOUSES, ERECTIONS, BUILDINGS, PLANT and MACHINERY thereto belonging.

Properties are subject to five several Indentures of Mortgage, together for £23,200, and subject to the interest accrued due thereon.
Tenders to be sent to Mr. SYDNEY PAUL HAM, the Liquidator of the Trimley Hall Lime Works and Caergwrle Sand Quarries (Limited), at his offices, No. 41, Essex-street, Strand, London, W.C., not later than the 20th day of July, 1882.
Particulars and conditions of sale, and Forms of Tender, may be obtained of R. S. FRASER, Esq., Solicitor, No. 23, Moorgate-street, London, E.C.; and of the Liquidator.

SECOND-HAND, BUT EQUAL TO NEW:—STEAM BOILERS.—Three first-class Boilers, 30 ft. by 7 ft., two flues, Galloway tubes in, and fittings, four years old, insured at 75 lbs. pressure. Will be sold cheap.

BOILERS.—Two Boilers, 28 ft. by 7 ft., two flues. Been working at 65 lbs. Price on rails, £130 each.

Other sizes of Boilers in stock, in excellent condition, 28 ft. by 7 ft., 24 ft. by 7 ft., 24 ft. by 6 ft., 20 ft. by 5 ft., 15 ft. by 5 ft., and 12 ft. by 5 ft. Safe for 65 and 60 lbs. pressure. Very cheap.

PUMPING ENGINES.—Beam and Horizontal. Diameters of cylinders, 100 in., 90 in., 65 in., 60 in., and 38 in. Very cheap.

WINDING ENGINES and COLLIERY PLANT of every description, second-hand, in stock.

H. HELLEWELL and CO., 4, NORTH CORRIDOR, ROYAL EXCHANGE, MANCHESTER.

FOR SALE, a SULPHUR MINE of the value of about £4,000,000 sterling, situate in Italy, in the Province of FORLI (Romagna). For full particulars apply to Mr. NATALE DI GNO, Aducci, Forli.

Correspond by preference in the French language. The owner desires to negotiate directly with the intending purchaser.

The principal sulphur mines in the Romagna are only five in number, including the above, which is the best. A company with large capital at its disposal could negotiate, whilst purchasing the above, for the others also, and thus secure the monopoly of the sulphur of the Romagna, which is reputed to be the best in all Italy.

FOR SALE, TWO SECOND-HAND ENGINES, equal to new, 26 in. cylinders, 4 ft. stroke, mounted on strong cast-iron diagonal frames, and fitted with condensers and reversing gear; suitable for Winding, Air-compressing, or Driving Stamps, and will BE SOLD CHEAP.

Also, a NEW 12 in. HORIZONTAL ENGINE, and ONE 5 in. and ONE 6 in. SECOND-HAND DONKEY ENGINES.

Every description of MINING PLANT always on sale.
Apply to FRANCIS DINGEY, Engineer and Ironfounder, Truro Cornwall, where the above may be seen.

THE ALLEN STEAM ENGINE GOVERNOR develops the utmost Power, gives Uniformity of Speed under varying loads, and Economises Fuel.

ALSO PEEET'S PATENT VALVE TAP, for Steam, Water, and Gas, from 1/4 inch upwards. Simple, durable, double seats, full way, and all parts interchangeable.

For particulars, apply to—
WHITLEY PARTNERS, RAILWAY WORKS, HUNSLET ROAD, LEEDS.

PUMPS

AT GREATLY REDUCED PRICES:—

NEW, HORIZONTAL.—Two 12 x 8; one 3 x 2; one 3 x 1 1/2; one 7 x 5, with condenser; one new treble barrel, 4 in. rams, for horse power.

DONKEYS.—Two 5 1/2 in. cylinder, 9 in. stroke, 3 in. ram.

PULSOMETERS.—One No. 1, and foot valve; one No. 3, and foot valve.

SECONDHAND, HORIZONTAL.—One 12 x 5; one 6 x 5; one 5 x 3; one 6 x 3; one 3 x 1 1/2.

DONKEYS.—One 8 x 10 x 4.

PULSOMETERS.—One No. 1.

CENTRIFUGAL.—One 4 in.; one 8 in., by Gwynne; one 8 in., Appold's patent.

HOLMAN'S DOUBLE FORCE, 5 in. cylinder.

All in first-class order. Prices and full particulars from the owner.

CHARLES D. PHILLIPS,

MACHINERY REGISTER OFFICES, NEWPORT, MON.

N.B.—SPECIALITE.—Lathes, Drilling Machines, and Engineers' Machine Tools generally.

NEWFOUNDLAND MINERAL LANDS. TO CAPITALISTS.

THE UNDERSIGNED would inform CAPITALISTS that they hold over ONE HUNDRED LICENCES for LAND in the various MINERAL SECTIONS of the Island, and are prepared to TREAT FOR A PORTION OF THE SAME, with a view of thoroughly prospecting such licences, and eventually working those upon which COPPER, LEAD, or other Minerals may be found. Each license comprises three square miles. Apply to—
JOHN STEER,
JAMES BROWNING.

St. John's, Newfoundland, April 17, 1882.

REPORTS ON MINES, &c.

THE UNDERSIGNED, Graduate of the Royal School of Mines (1857) London, of varied experience in the States of America, Mexico, and in Spain, undertakes the reporting upon MINING and METALLURGICAL INDUSTRIES in the interest of investors
Denver, Colorado, U.S.A. A. M. BELL.

J. A. JONES,

MINING ENGINEER,

GIJON (ASTURIAS), SPAIN

Mines inspected and reported on. Assays and valuations effected.

Has on hand offers of Mines of Copper, Calamine, Blende, Phosphate of Lime, Tin, Lead, Iron, Manganese, and Manganiferous

Iron Ores

Now Ready,

TABLE OF THE ORDER OF SUPERPOSITION OF BRITISH ROCKS, showing the SYSTEMS, FORMATIONS, GROUPS of STRATA, CHARACTERISTIC ROCKS, PREVALENT MINERALS, and TYPICAL FOSSILS.
By T. A. READWIN, F.G.S., M.M.S., &c.
Published by Messrs. Spon, Charing Cross. Price One Shilling

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RECOMMEND TO CONTRACTORS, MINERS, PIT SINKERS, QUARRYMEN, AND OTHERS, THEIR

TONITE, OR COTTON POWDER,

AS BEING THE SAFEST, CHEAPEST, AND STRONGEST OF ALL EXPLOSIVES.

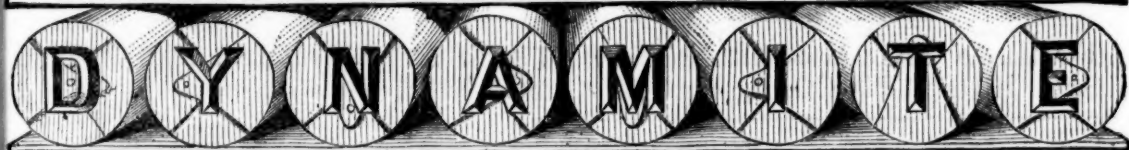
TONITE is the most efficient and economical blasting agent ever invented, and is largely in demand. It does not contain any Nitro-glycerine, and is, therefore, exempt from the dangers of exudation, or of freezing and its attendant process of thawing. The Company also manufacture PATENT DETONATORS of a quality much superior to the foreign article. The trade supplied on favourable terms.

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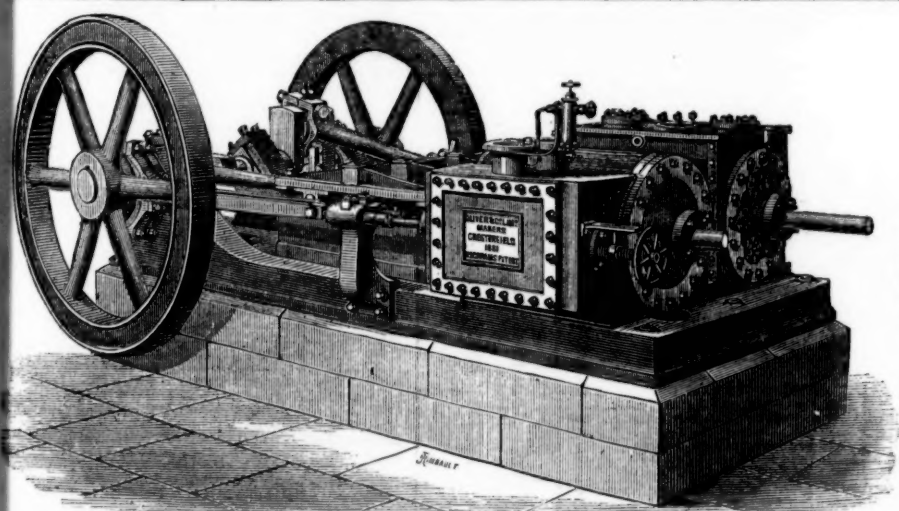


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Air Compressor.
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PATENTS OF PROFESSOR BARFF AND MESSRS. G. AND A. S. BOWER.

The PROCESS of COATING IRON and STEEL by these combined Patents is extremely simple and economical, requiring only a specially constructed Muffle or Furnace, which is also applicable to other purposes. Small articles, not exceeding 9 ft. x 3 ft. x 2 ft., may now be treated at the Furnaces, at ST. NEOTS, HUNTS, on reasonable terms pending the erection of larger Furnaces by Licensees in various manufacturing centres. LICENSES will be granted to the Iron Trade, Hardware Manufacturers, and others on Royalties based on an average of 5 per cent on value of articles to be treated, ranging from 5s. per Ton upwards. For Terms, Cost of Apparatus, and all other details, apply to the—

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 of the largest and most approved kinds in use, SUGAR MACHINERY,
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SECOND-HAND MINING MACHINERY FOR SALE,
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PUMPING ENGINES; WINDING ENGINES; STAMPING ENGINES;
 STEAM CAPSTANS; ORE CRUSHERS; BOILERS and PITWORK of
 various sizes and descriptions; and all kinds of MATERIALS required for
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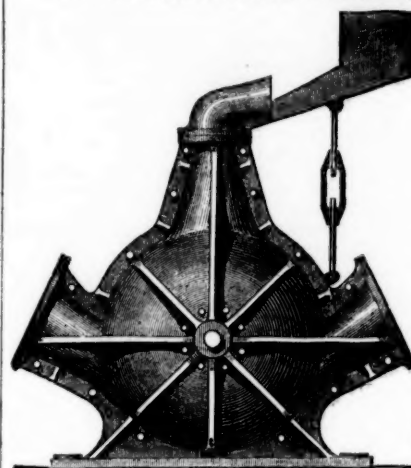
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 SHEET, RODS
 TOOLS, &c.

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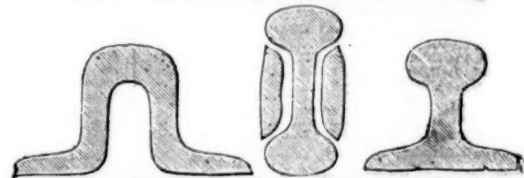
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IRON AND STEEL RAILS, of all sections, from 10 to 86 lbs. per
 yard, new perfect, new slightly defective, or second-hand, with Fish-plates,
 Bolts and Nuts, Chairs, Spikes, and Points and Crossings to match, when re-
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STEEL AND IRON WIRE ROPES, LOCOMOTIVE ENGINES, &c., &c.
 BARS, PLATES, SHEETS, &c.
STEEL OF ALL KINDS. PIG IRON OF ALL KINDS
 Delivered at all Railway Stations and Ports in Great Britain.

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**SAFETY FUSE
 MANUFACTURER.**



This manufacture embraces all the latest improvements for use in
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 adapted for exploding Gunpowder, Dynamite, or any other Ex-
 plosive; and is made suitable for exportation to any part of the world.
 Price Lists and Sample Cards on application.

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PRACTICAL HYPSONETRY: A Method of DETERMINING
 ALTITUDES (Heights of Mountains and Depths of Mines) accurately and
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THE MINING SHARE LIST.

BRITISH DIVIDEND MINES.

Shares.	Divid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
3200 Blue Hills, c, St. Agnes	4 6	1 1/4	1 1/4	0 4	0 0	0 0
6000 Carn Brea, c, Illogan	9 7 1/2	12 1/2	12 1/2	52 11	8 0	0 0
10240 Devon Gt. Consols, c, Tavistock	1 0 0	8 1/4	8 1/4	113 7	0 0	0 0
4200 Devenish, c, Camborne	10 14 10	70	65 5/8	123 13	0 0	0 0
8000 East Pool, c, Illogan	0 9 9	55	50 5/8	29 11	0 0	0 0
12500 Frongoch, c, Cardigan (10000 sh. iss.)	2 0 0	2	2	0 0	0 0	0 0
12000 Great Holway, c, Flintshire	5 0 0	6	6	0 0	0 0	0 0
15000 Great Laxey, c, Isle of Man	4 0 0	18	17 1/2	28 10	0 0	0 0
6400 Green Hurth, c, Durham	0 6 0	8 1/4	8 1/4	3 11	0 0	0 0
20000 Grogwinion, c, Cardigan	2 0 0	1 1/4	1 1/4	0 16	0 0	0 0
10240 Gunnislake (Clitters), c, c	2 2 0	2 1/4	2 1/4	0 19	0 0	0 0
2800 Isle of Man, c, Isle of Man	25 0 0	0	0	63 5	0 0	0 0
6000 Killfret, c, Chacewater	4 3 0	6	5 1/4	0 6	0 0	0 0
20000 Leadhills, c, Lanarkshire	4 0 0	2	2	0 15	0 0	0 0
430 Lisburne, c, Cardiganshire	13 15 0	0	0	613 0	0 0	0 0
10000 Melanear, c, Hayle	2 0 0	5	4 1/4	1 18	0 0	0 0
9000 Mining Co. of Ireland, c, c	7 0 0	10	9 1/4	69 3	0 0	0 0
20000 Mining Co. of Ireland, c, c	7 0 0	10	9 1/4	24 0	0 0	0 0
8000 Mona, c, Anglesea	5 0 0	5	4 1/4	0 10	0 0	0 0
11829 North Hendre, c, Wales	2 10 0	0	0	3 14	0 0	0 0
8146 Ditto	1 5 0	0	0	0 9	0 0	0 0
2000 North Levant, c, St. Just	13 6 0	4 1/4	3 1/4	4 16	0 0	0 0
4760 Penhall, c, St. Agnes	4 0 0	0	0	3 17	0 0	0 0
6000 Pennant, c, North Wales	5 0 0	4 1/4	4 1/4	10 0	0 0	0 0
12000 Phoenix United, c, c, Llanidloes	0 0 0	2 1/4	2 1/4	17 2	0 0	0 0
18000 Pt. Patrick, c, c, Llanidloes	1 0 0	0	0	0 18	0 0	0 0
10000 Red Rock, c, Cardigan	2 0 0	0	0	0 4	0 0	0 0
12000 Roman Gravel, c, Salop	7 10 0	9 1/4	8 1/4	9 1	0 0	0 0
4000 Rhydalun, c, Wales	10 0 0	0	0	0 5	0 0	0 0
512 South Canard, c, St. Cleer	1 5 0	17 1/2	10 10 1/2	749 3	0 0	0 0
6123 South Canard, c, St. Cleer	6 5 0	8 1/4	8 1/4	9 3	0 0	0 0
9000 South Canard, c, St. Cleer	1 16 0	0	0	0 4	0 0	0 0
4500 South Wheel Franks, c, Illogan	7 12 0	12	11 1/2	40 15	0 0	0 0
6000 Tinroft, c, c, Pool, Illogan	11 10 0	13	10 1/2	51 6	0 0	0 0
15000 Van, c, Llanidloes	1 0 0	6	5 1/4	2 10	0 0	0 0
12000 West Holway, c, Flintshire	1 0 0	1	1	0 1	0 0	0 0
512 West Tolgus, c, Redruth	98 0 0	17 1/2	15 17 1/2	33 0	0 0	0 0
2400 West Wheel Betton, c, Camborne	15 0 0	18	15 17 1/2	111 10	0 0	0 0
6000 West Basset, c, Illogan	7 4 0	10 1/4	9 1/4	28 3	0 0	0 0
12000 Wheel Crebor, c, Tavistock	2 4 0	3	2 1/4	0 13	0 0	0 0
1024 Wheel Eliza Consols, c, St. Austell	18 0 0	0	0	42 10	0 0	0 0
15000 Wheel George, c, c, Carnarvon	1 0 0	0	0	0 1	0 0	0 0
6000 Wheel Grenville, c, Camborne	15 0 0	11	9 1/4	10 1/2	0 0	0 0
4295 Wheel Kitty, c, St. Agnes	5 9 0	1 1/4	1 1/4	12 18	0 0	0 0
3000 Wheel Pevor, c, Redruth	7 11 0	9 1/4	9 10	8 13	0 0	0 0

FOREIGN DIVIDEND MINES

Shares.	Divid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
130000 Almaden, c, Spain	2 0 0	2	1 1/2	2 5	8 0	0 0
10000 Almaden, c, Spain	1 0 0	2	1 1/2	0 6	0 0	0 0
20000 Australian, c, South Australia	7 7 0	2 1/2	2 1/2	1 5	0 0	0 0
15000 Birdseye Creek, c, California	4 0 0	1 1/4	1 1/4	1 0	0 0	0 0
20000 Cape Copper Mining, c, South Africa	7 0 0	53	52 53	47 7	6 0	0 0
50000 Copiapo, c, Chile (24 shares)	3 8 0	3 1/4	3 1/4	1 17	9 0	0 0
70000 English & Australian, c, S. Aust.	2 10 0	1 1/4	1 1/4	3 0	9 0	0 0
2000 Eng. Aus., c, Vict. (20000 o.)	1 0 0	0	0	0 3	8 0	0 0
25000 Fortuna, c, Spain	2 0 0	1 1/4	1 1/4	8 1	0 0	0 0
60000 Frontino & Bolivia, c, New Gran.	2 0 0	2 1/4	2 1/4	9 9	0 0	0 0
200000 La Plata, c, Spain	2 0 0	1 1/4	1 1/4	11 10	0 0	0 0
15000 Linars, c, Spain	2 0 0	4 1/4	4 1/4	18 19	0 0	0 0
60000 New Quebrada, c, Venezuela	5 0 0	4 1/4	3 1/4	0 5	6 0	0 0
1000 Ditto, Debentures	100 0 0	98	95 100	6	per cent.	0 0
3000 Oregon, c, Oregon, U.S. (pref. sh.)	4 0 0	0	0	0 2	6 0	0 0
50000 Panulillo, c, Chile	4 0 0	6 1/4	5 1/4	1 0	9 0	0 0
25000 Pitagui, c, Brazil (in 6000 £1 pd.)	0 10 0	0	0	0 1	0 0	0 0
14000 Pontgibaud, c, France	20 0 0	11	9 11	28 17	6 0	0 0
100000 Port Phillip, c, Clunes (22 shares)	1 0 0	3 1/4	3 1/4	1 14	2 0	0 0
50000 Rara Fortuna, c, Argent. Republic	1 0 0	2 1/4	1 1/4	0 2	0 0	0 0
50000 Richmond Consol., c, Nevada	1 0 0	8 1/4	7 1/4	13 11	0 0	0 0
24532 Rio Tinto, c, Moraga Bds., Huéla	0 10 0	24	23 24	1 12	0 0	0 0
25000 Ditto, shares	10 0 0	24	23 24	1 12	0 0	0 0
40000 Santa Barbara, c, Brazil	0 10 0	0	0	0 12	9 0	0 0
120000 Scottish-Australian Mining Co., c, c	1 0 0	1 1/4	1 1/4	10	per cent.	0 0
80000 Ditto, New	0 10 0	0	0	10	per cent.	0 0
22500 Sierra Buttes, c, California	2 0 0	1 1/4	1 1/4	2 4	0 0	0 0
40625 Ditto, Plumas Eureka	2 0 0	1 1/4	1 1/4	2 16	0 0	0 0
253000 St. John del Rey (45 Stock and multiple)	100 100	180	180	5	p. c. for half-year	0 0
91896 Tharsis, c, Spain (311000 sh. p. d.)	10 0 0	41	40 41	31 6	0 0	0 0
20000 Toluca, c, Colombia (A. & Behre)	5 0 0	0	0	2 1	6 0	0 0
25000 Victoria (London), c, Australia	1 0 0	0	0	0 13	10 0	0 0
100000 Victorine (Nevada, U.S.) Deb. Bds.	1 0 0	0	0	0 2	0 0	0 0
15000 Western Andes, c, Colombia	5 0 0	0	0	3 14	6 0	0 0
2100 W. Prussian (50000 pref. sh. £10 pd.)	10 0 0	10	9 10	4 2	0 0	0 0
54000 Yorke Pen., c, South Aust. Pref. sh.	1 0 0	1 1/4	1 1/4	0 3	0 0	0 0

* Have made calls since last dividend was paid.

NON-DIVIDEND BRITISH MINES.

Shares.	Divid.	Last wk.	Clos. pr.
30000 Alston United, c, Cumberland	1 0 0	0	0
12000 Avon United, c, c, Carnarvonshire	5 0 0	0	0
11583 Bedford Unit., c, c, Tavistock (21 sh.)	0 12 0	1 1/4	1 1/4
30000 Boddie, c, c, Denbighshire	1 0 0	0	0
30000 British, c, c, Wrexham	1 0 0	0	0
30000 Beuno Consols, c, c, Flintshire	1 0 0	1	1
20000 Bwch United, c, Cardigan	0 17 6	1 1/4	1 1/4
50000 Carn Camborne, c, c, Camborne	1 0 0	1 1/4	1 1/4
20000 Carnarvon, c, c, Carnarvonshire	1 0 0	1 1/4	1 1/4
37500 Carnarvonshire Cons., c, c, Llanrwst	2 0 0	1 1/4	1 1/4
30000 Carpell Consols, c, c, Stephens	1 0 0	0	0
20000 Central Cons., c, c, Gwynedd	0 15 6	0	0
25000 Coed-y-Fedw & Pant-y-Buarth, c, c	1 0 0	1 1/4	1 1/4
2450 Cook's Kitchen, c, Illogan	30 14 9	37 1/2	37 1/2
10000 Cornwall Great Cons. (4500 issued)	1 0 0	0	0
6400 Crook Burn, c, Cumberland	0 17 0	1 1/4	1 1/4
14000 Crosswood Mining Lands, c, c	1 0 0	0	0
45000 D'Esby Mountain, c, c, Llanrwst	0 10 0	1 1/4	1 1/4
20000 Denbighshire Consolidated, c, c	3 0 0	2 1/4	2 1/4
10000 Derwent, c, c, Durham	4 0 0	1 1/4	1 1/4
60000 Devon, c, c, Tavistock	1 0 0	0	0
50000 Devon Friend, c, c, Tavistock	1 0 0	0	0
12000 Devon Great United, c, c, Tavistock	1 0 0	0	0
50000 Drakewells, c, c, Calstock	0 15 0	0	0
10000 Dubby Syke, c, c, Durham	1 0 0	0	0
12000 East Blue Hills, c, St. Agnes	0 5 0	1 1/4	1 1/4
6000 East Botallack, c, St. Just	0 10 0	1 1/4	1 1/4
6144 East Canard, c, St. Cleer	4 8 6	1 1/4	1 1/4
4000 East Chiverton, c, c, Penryn Bridge	10 12 3	2 1/4	2 1/4
30000 East Craven Moor, c, c, Tavistock	1 0 0	1 1/4	1 1/4
12000 East Devon Cons., c, c, Buckfastleigh	2 0 0	1 1/4	1 1/4
30000 East Great United, c, c, Llanidloes	1 0 0	1	1
20000 East Long Rake, c, c, Wales	1 0 0	1	1
21000 East Roman Gravel, c, c, Salop	0 15 0	1 1/4	1 1/4
18000 East Van, c, c, Llanidloes	5 0 0	0	0
2048 East Wheel Lovell, c, c, Helston	15 13 6	1 1/4	1 1/4
100000 East Wheel Rose, c, c, Newlyn East	1 0 0	0	0
12000 Gawton, c, c, Tavistock (21 shares)	1 18 0	1 1/4	1 1/4
40000 Glas. Car., c, c, (30000 sh. £1 pd., 10000 15s. pd.)	1 0 0	1 1/4	1 1/4
14000 Glenroy, c, c, Isle of Man	4 0 0	1 1/4	1 1/4
10000 Gogginan, c, c, Cardiganshire	1 0 0	1 1/4	1 1/4
32000 Gogginan, c, c, Cardiganshire	1 0 0	1 1/4	1 1/4
25000 Goodover, c, c, Llanidloes	2 10 0	2 1/4	2 1/4
8500 Goodover & Merilyn Cons., c, c	1 0 0	0	0
20000 Great Dylliff (10000 sh. issued)	1 0 0	0	0
100000 Great Polgoth United, c, c	1 0 0	1 1/4	1 1/4
6000 Great West Chiverton, c, c, St. Agnes	0 5 0	1 1/4	1 1/4
10000 Gwern-y-Mynydd, c, c, Flint (pref.)	4 0 0	1	1
70000 Gwydyr Amal, c, c, Carnarvon	1 0 0	0	0
12000 Herodsfoot, c, c, near Llanidloes	0 16 0	1 1/4	1 1/4
10000 Herodsfoot, c, c, Calstock	0 12 0	1 1/4	1 1/4
20000 Kilmichael, c, c, (20000 issued)	1 0 0	0	0
25000 Kit Hill Gt. Cons., c, c, (21 sh.)	0 15 0	1 1/4	1 1/4
15000 Lady Ann, c, c, Llanarmon	1 0 0	1 1/4	1 1/4
10000 Lady Ashburton, c, c, Calstock	1 0 0	1 1/4	1 1/4
15000 Lady Bertha, c, c, Tavistock	1 0 0	1 1/4	1 1/4
25000 Langford, c, c, Calstock	0 10 0	1 1/4	1 1/4
15000 Levant, c, c, St. Just	11 10 0	7 1/4	5 7 1/2
15000 Llanidloes, c, c, Wales	1 0 0	0	0
10000 Llanidloes, c, c, Helston	1 0 0	0	0
5120 Lovell, c, c, Wendron	0 16 0	1 1/4	1 1/4
90000 Marke Valley, c, c, Llanidloes	6 11 0	1 1/4	1 1/4
6000 Medlyn Moor, c, c, Llanidloes	0 6 8	0	0
28000 Mid-Devon, c, c, (17000 sh. £4 pd.)	0 6 8	0	0
20000 Mona Consols, c, c, Anglesea	1 0 0	1 1/4	1 1/4
15000 Monkstoun, c, c, Devon	2 0 0	0	0
20000 Mostyn Consols, c, c, Flint	1 0 0	3	3 3/4
10000 Mynydd Gwladus, c, c, Cardigan	4 0 0	0	0
10000 Morfa Bay, c, c, Anglesea	1 0 0	1 1/4	1 1/4
80000 Mounts Du, c, c, Breage	1 0 0	1 1/4	1 1/4
6144 Mount Curig, c, c, Redruth	1 5 0	4 1/4	4 1/4
2400 New Cook's Kitchen, c, c, Illogan	8 18 0	6 1/4	5 6 1/4
9000 New Dolcoath, c, c, Camborne	0 10 0	0	0
100000 New Great Wheel Vor, c, c, Breage	0 10 0	0	0
10000 New Holmby, c, c, Calstock	3 0 0	0	0
6000 New Kitty, c, c, St. Agnes	0 12 0	2 1/4	2 1/4
12000 New Penrose, c, c, Helston	1 0 0	1 1/4	1 1/4
15000 New Redmoor, c, c, Calstock	1 5 0	0	0
17500 New Terras, c, c, St. Austell	0 5 0	1 1/4	1 1/4
12000 New Trevelyan, c, c, Llanidloes	0 6 0	0	0
12000 New West Canard, c, c, Llanidloes	1 0 0	1 1/4	1 1/4
3000 New Wheel Pevor, c, c, Redruth	0 10 0	1 1/4	1 1/4
35000 New Wye Valley, c, c, Montgomery	1 0 0	1 1/4	1 1/4
20000 North Alfred, c, c, Phillack	0 10 0	0	0
5328 North Bury, c, c, Scorrier	1 5 8	1	1 1/4
10000 N. D'Esby Mount, c, c, Llanidloes	1 0 0	0	0
25000 North Gogginan, c, c, Cardiganshire	1 0 0	1 1/4	1 1/4

NON-DIVIDEND MINES—continued.

Shares.	Divid.	Last wk.	Clos.
6400 North Green Hurth,* (3400 H. pd.)	2 6	3 1/4	3 1/4
25000 North Grogwinion,* s, c, Cardigan	1 0	1 1/4	1 1/4
12000 North Herodsfoot, c, c, Liskeard	0 8	1 1/4	1 1/4
50000 North Molton, c, c, Devon	1 0	0	0
6000 North Penstruthal, t, c, Gwennap	2 3	3 1/4	3 1/4
2936 North Treaskerby, c, St. Agnes	8 17	10	10
8000 Northern,* i, Durham	1 0	0	3 1/4
40000 Okel Tor, c, c, Calstock	1 0	0	0
80000 Old Shepherds, c, c, Cornwall	1 0	0	3 1/4
12000 Pandora,* i, Carnarvon	2 0	0	3 1/4
11612 Pant-y-Mwyn,* i, Mold	2 0	0	2 1/4
45000 Parys Corporation,* c, Anglesea	1 0	0	0
7500 Pateley Bridge, i, Yorkshire	1 0	0	0
6000 Pedn-andrea, t, Redruth	2 13	0	3 1/4
12000 Pelyn Wood, c, Lanivory	0 5	6	3 1/4
600 Pendarvas United, c, Camborne	6	0	0
12000 Pen-y-rsadd, t, c, Flintshire	1 0	0	1 1/4
15000 Pen-y-rsadd, c, Flintshire	1 0	0	1 1/4
12000 Perran Wheel, c, c, Cornwall	2 0	0	1 1/4
10000 Pioneer,* var. Wales	0 2	6	3 1/4
3000 Polcreho, t, Crown	0 5	0	0
10000 Polroze, t, Cornwall	1 0	0	3 1/4
10000 Port Nigel,* s, c, Carnarvonshire	2 0	0	0
6000 Prince Royal, t, c, s, St. Agnes	1 0	0	0
15000 Prince of Wales, c, s, Calstock	0 15	0	3 1/4
30000 Royalton,* i, St. Columb	1 0	0	1 1/4
30000 Russell United,* c, Tavistock	0 15	6	3 1/4
30000 Silver Hill, c, c, Cornwall	1 0	0	1 1/4
50000 Sinclair,* i, b, Wiltford	1 0	0	1 1/4
40000 Sortridge,* c, Horrabridge	1 0	0	1 1/4
6000 South Carbis, t, c, Redruth	0 10	0	2 1/4
35000 So. Devon Unit,* c, Buckfastleigh	1 0	0	0
5000 South Dolcoath, t, c, Illogan	0 14	0	1 1/4
6000 South Penstruthal, t, c, Gwennap	2 2	6	3 1/4
6000 South Tolecarne, c, c, Camborne	4 14	0	2 1/4
40000 South Wheal Crebor,* c, Tavistock	1 0	0	3 1/4
2043 South Wheal Crilly, c, Illogan	2 9	6	11 1/4
40000 Tamar,* s, Beara	2 9	6	11 1/4
110000 Tankerville Gt. Consols, Callop*	0 1	0	1 1/4
6400 Teesdale,* i, Durham (pref.)	1 0	0	3 1/4
20000 Tin Hill,* t, St. Stephens	1 0	0	13 1/4
6000 Tregeho, t, c, Cornwall	3 0	0	4 1/4
10000 Trevaunan,* t, c, Gwennap	1 0	0	3 1/4
8000 Trevaunance, t, St. Agnes	0 2	0	2 1/4
12000 Trevice Consols, t, c, Gwennap	0 5	0	0
35000 Trewan & Glyn,* c, (t 17500 pref. sh)	1 0	0	3 1/4
10000 Vaughan,* c, Caerphilly	10	0	0
8000 Victor,* i, Cilceen, Flintshire	0 14	0	0
2000 Violet Seton, c, Camborne	12	0	20 1/4
15000 Vincent,* t, Altarnun	0 5	0	15 1/4
20000 Walkham United,* t, c, Tavistock	1 0	0	3 1/4
12000 West Asheton, i, Carnarvon	1 0	0	0
12000 West Caradon, c, St. Cleer	0 7	3	3 1/4
3000 W. Craven Moor, i, Pateley Bridge*	10	0	0
12000 West Crebor,* c, Tavistock	0 6	6	3 1/4
12000 West Devon Consols, c, Calstock	1 0	0	3 1/4
10000 West Godolphin, c, Exeter	1 0	0	2 1/4
6000 West Kitty, t, St. Agnes	0 12	0	10 1/4
20000 West Lisburne,* i, Cardigan	1 13	0	1 1/4
3000 West Mary Ann, i, Menheniot	1 13	0	1 1/4
20000 W. Pateley Bridge, i, Yorks.	1 0	0	3 1/4
6000 West Polbreen, t, c, St. Agnes	0 5	6	1 1/4
5190 West Police, St. Day	6	0	5 1/4
2048 West Wheel Frances, t, Illogan	32	3	10 9 1/4
12000 West Wheal Preevor, t, Redruth	3 0	6	12 10 1/4
12000 West Wheal Vair,* c, Montgomery	3 0	0	0
6000 Wheel Agar, c, Illogan	15	15	17 1/4
6144 Wheel Bassett, c, Illogan	15	15	10 1/4
3000 Wheel Boates, t, Redruth	0 15	0	2 1/4
12000 Wheel Coates, t, St. Agnes	0 2	0	3 1/4
2585 W. Comf., t, No. Treas., t, c, Gwennap	2 2	0	3 1/4
50000 Wheel Elizabeth,* t, Cornwall	1 0	0	0
5000 W. Fortune,* s, c, s, Harrowbarrow	1 0	0	0
12298 Wheel Jane, t, Ken	1 16	8	1 1/4
12298 Wheel Jane, t, Ken	1 0	6	3 1/4
25000 Wh. Honey and Trevelyan,* s, Lisk.	2 0	0	2 1/4
12000 Wheel Lusk, t, Callington	7 3	0	10 3 1/4
2000 Wheel Owles, t, St. Just	7 3	0	10 3 1/4
6000 Wh. Prussia, & Cardew, t, c, BIRTH	2 0	0	1 1/4
6000 Wheel Systers, t, Lelant	16	10	1 1/4
4096 Wheel Unity, t, c, Redruth	3 19	6	3 2 1/4
5000 Yorkshire,* i, i	1 0	0	0
4000 Ystwith,* i, Cardigan	1 0	0	0